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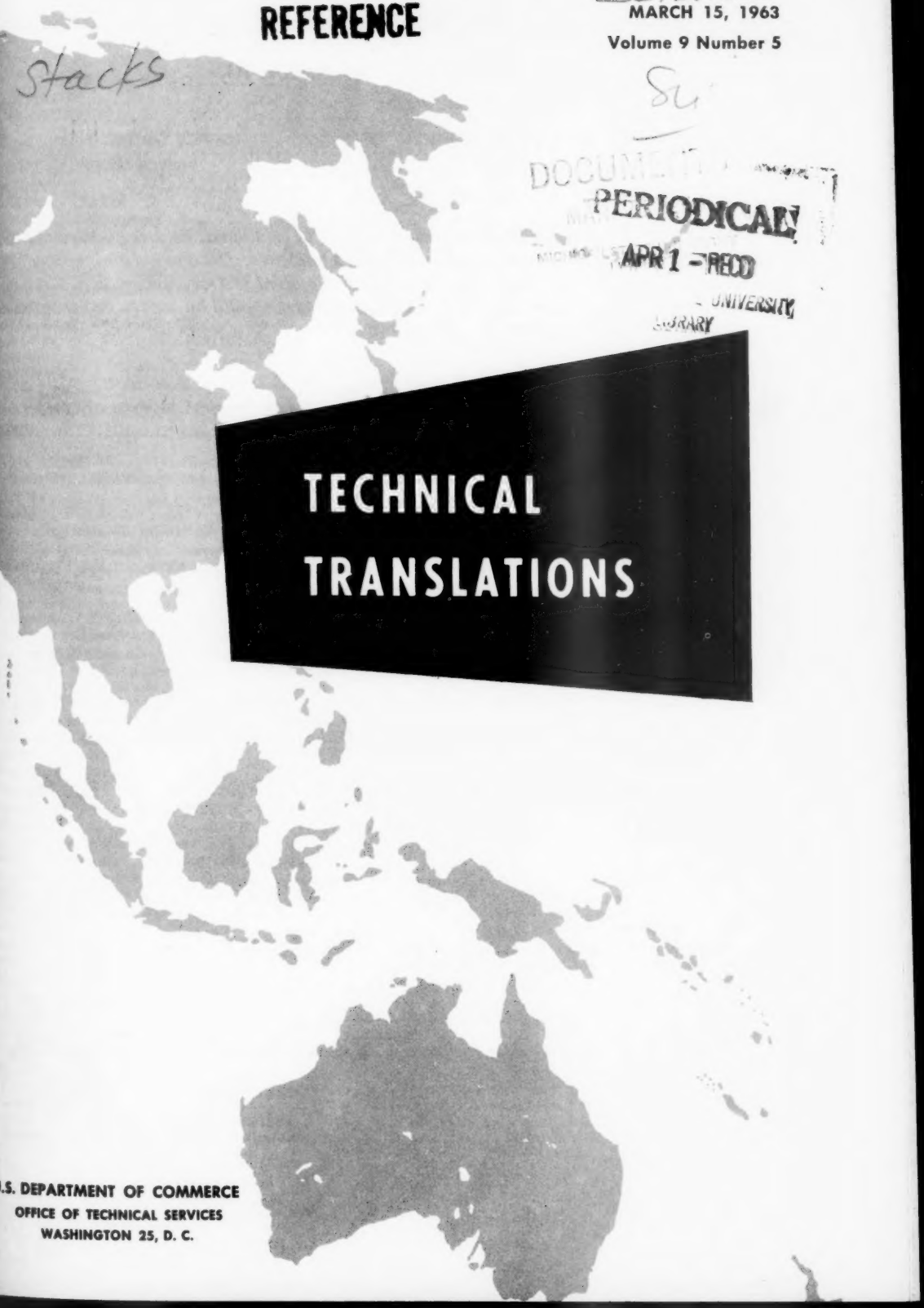

U.S. DEPARTMENT OF COMMERCE
OFFICE OF TECHNICAL SERVICES
WASHINGTON 25, D. C.

TECHNICAL TRANSLATIONS

U.S. DEPARTMENT OF COMMERCE
Luther H. Hodges, *Secretary*

OFFICE OF TECHNICAL SERVICES
John C. Green, *Director*

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TECHNICAL TRANSLATIONS

Vol. 9, Number 5 Pages 445 - 571 March 15, 1963

*Descriptors marked with an asterik are included in the subject index.

BIBLIOGRAPHY

ABSTRACTS FROM EAST EUROPEAN SCIENTIFIC AND TECHNICAL JOURNALS NO. 50 (GENERAL SERIES). 15 Jan 63 [18]p. JPRS: 17148.
Order from OTS or SLA $1.60 63-15091

Consists of abstracts of articles from the scientific and technical journals of Hungary and Rumania.

DESCRIPTORS: *Abstracts, *Mathematics, Music, Statistical analysis, *Medicine, *Industry, Documentation, *Geography, *Electronics, Aircraft, Space flight, *Agriculture, *Hungary, *Rumania.

AGRICULTURE

USSR INDUSTRIAL DEVELOPMENT: SOVIET TRACTORS AND AGRICULTURAL MACHINERY NO. 48. 11 Dec 62 [13]p. (figs. omitted). JPRS; 16625.
Order from OTS or SLA $1.60 63-13511

Trans. of [DVNKh SSSR]. Informatsionnyi Byulleten', 1962, no. 9, p. 20; Vneshnyaya Torgovlya (USSR) 1962 [v. 42] no. 10, p. 40-42; and from Kazakhstanskaya Pravda (USSR) 1962, 18 Sep, p. 2; Ekonomicheskoi Gazeta (USSR) 1962, no. 40[61], p. 4.

DESCRIPTORS: *Industrial production, *Agricultural machinery, *Tractors, Design, Industrial plants.

Contents:
New exhibits
A new plant, by E. Baturlinskii
An all-purpose machine
At the tractor plants, by P. Afonin.

USSR INDUSTRIAL DEVELOPMENT: SOVIET TRACTORS AND AGRICULTURAL MACHINERY NO. 50. 4 Jan 63 [19]p. JPRS: 16974.
Order from OTS or SLA $1.60 63-13844

Trans. of Tekhnika v Sel'skom Khozyaistve (USSR) 1962 [v. 22] no. 9, p. 48-52; no. 10, p. 47-50; Traktory i Sel'khozmashiny (USSR) 1962 [v. 32] no. 10, p. 16-18, 37-40 (excerpts).

DESCRIPTORS: *Industrial production, *Tractors, *Agricultural machinery, Agriculture, Production, Soils, Erosion, Vehicles, Transportation.

Contents:
Tractor builders aid agriculture, by A. Podrigalo and S. Libtsis
Modernized VTZ tractors, by B. Alisanov
Machines for cultivating soils subject to erosion, by B. Chudinov
The universal self-propelled chassis with a set of mounted machines, by Kh. I. Izakson
Machines, developments of the North West GKB, by S. Betin
The AVT-500 unit for grape transportation, by V. Vishnevskii
The KON-2.8PM cultivator hiller, by B. P. Chernobaev

Nagasawa, Masatoshi and Taguchi, Taeko.
SHIKIMIC ACID IN FLUE-CURED TOBACCO LEAF [1962] 6p.
Order from K-H $7.50 K-H-8426

Trans of [Nihon Senbai Kosha Chuo Kenkyusho Kenkyu Hokoku] (Japan) 1958, no. 99, p. 8-9.
Another trans. is available from SLA $1.10 as 61-20231 [1961] 6p.

DESCRIPTORS: *Tobacco, *Plants, *Shikimic acid.

For abstract see Technical Translations 7: 579, 1962.

Neugebauer, V. K.
THE CRITICAL LEVEL OF GROUND WATERS IN VOYVODINA AND THE DANGER OF SECONDARY SALINIZATION: SUMMARY. [1962] 2p.
Available on loan from SLA 63-10054

Trans. from Radovi Poljoprivrednih Naucno-Istrazivackih Ustanova (Yugoslavia) [1949] v. 1, p, 91.

DESCRIPTORS: *Water supplies, *Salinity, Agriculture, *Soils, Fertility, *Irrigation systems.

Neugebauer, V. K.
FITNESS OF SURFACE AND GROUND WATERS TO IRRIGATION AND THEIR CLASSIFICATION IN VOYVODINA'S NATURAL CONDITIONS: SUMMARY. [1962] 2p.
Available on loan from SLA 63-10056

Trans. from Radovi Poljoprivrednih Naucno-Istrazivackih Ustanova (Yugoslavia) [1949] v. 1, p. 109.

DESCRIPTORS: *Water supplies, *Soils, *Irrigation systems, Salinity, *Minerals, Agriculture, Classification.

Neugebauer, V. K., Kavazov, K., and Vigh, G.
POSSIBILITY OF CULTIVATION OF RICE ON SALINIZED VOYVODINA'S SOILS: SUMMARY. [1962] [1]p.
Available on loan from SLA 63-10055

Trans. from Radovi Poljoprivrednih Naucno-Istrazivackih Ustanova (Yugoslavia) [1949] v. 1, p. 41.

DESCRIPTORS: Agriculture, *Rice, *Soils, *Salinity, Classification, Minerals, *Chemical analysis, Irrigation systems.

ASTRONOMY

Fel'd, M.
INTO THE DEPTHS OF THE UNIVERSE: THE LATEST DISCOVERIES OF KAZAKHSTAN ATROPHYSICISTS. 25 Sep 62 [9]p. FTD-TT-62-1255; AD-287 705.
Order from OTS or SLA $1.10 63-13184

Unedited rough draft trans. from Kazakhstanskaya Pravda (USSR) 1962, 27 Mar, p. 4.

DESCRIPTORS: Astrophysics, *Astronomical observatories, Scientific research, Moon, Galaxies, Interstellar matter.

Khaikin, S. E., Kaidanovskii, N. L. and others.
THE LARGE RADIO TELESCOPE AT PULKOVO, tr. by J. L. Zygielbaum. 30 Jan 62 [60]p. 22 refs. JPL Trans. 25; NASA N62-10819.
Order from OTS or SLA $5.60 63-15081

Trans. from Astronomicheskaya Observatoriya, Pulkovo. Izvestiya (USSR) 1960 [v. 21, no. 5(164)]. Another trans. is available from OTS or SLA $3.60 as 61-16113 [1961] [34]p.

DESCRIPTORS: *Telescopes, Radio equipment, Radio astronomy, Design, Construction, Tests, Resolution, Reflectors, Antennas, Microwave equipment.

The telescope consists of a range of flat reflecting elements which form a polyhedral surface tangential to an elliptic cone surface. The reflector transforms the plane wave into a cylindrical wave with a vertical axis, the latter being transformed into a spherical wave by the secondary parabolic cylinder reflector. The high relative accuracy of the multielement reflecting surface is obtained by an accurate adjustment of its separate elements. The axis of the radio telescope can be directed to any part of the sky by shifting the reflecting elements and the feed. The geometry of the reflecting surface, characteristics of the directional diagram, and kinematics of the adjusting mechanism of the reflecting elements are considered. The major characteristics of the radio telescope and some results of the astronomical observation are given. (Author)

Astrophysics

BULLETIN OF THE COMMITTEE ON COMETS AND METEORS UNDER ASTRONOMICAL COUNCIL OF USSR ACADEMY OF SCIENCES, 1958, NO. 2: SELECTED ARTICLES. 20 Nov 62 [23]p. (figs. omitted) 12 refs. MCL-226.
Order from OTS or SLA $2.60 63-13876

Unedited rough draft trans. of Akademiya Nauk SSSR. Komissiya po Kometam i Meteoram. Byulleten', 1958, no. 2, p. 34-49.

DESCRIPTORS: *Comets, *Meteors, *Astronomy, Probability, Least squares method, Radar stations, Wind, Ionization, Radar analysis, Reflection, Radar signals, Radio waves, Meteorological data, Meteorological radar, Radio astronomy.

Contents:
Concerning an error in determining the coordinates of a radiant, by A. K. Sosnova
Tentative results of radar observations of meteors on λ = 10 meters, by E. I. Fyalko and others
Concerning the problem involved in selection of a transmitter of the radar station for radio-analysis of meteoric traces, by F. I. Peregudov
Certain special features in resonance reflection of radiowaves from meteoric traces, by E. K. Nemirova.

BULLETIN OF THE STATIONS FOR OPTICAL OBSERVATION OF ARTIFICIAL EARTH SATELLITES, 1960, NO. 8; SELECTED ARTICLES. 25 Oct 62 [28]p. 5 refs. FTD-TT-62-861. AD-290 828
Order from OTS or SLA $2.60 63-13377

Unedited rough draft trans. of Byulleten' Stantsii Opticheskogo Nablyudeniya Iskusstvennykh Sputnikov Zemli, 1960, no. 8[18] p. 3-13 and 20-23.

DESCRIPTORS: *Satellites (Artificial), *Optical tracking *Photography, *Astronomical cameras, Camera shutters, Telescopes, *Tracking telescopes, Brightness, Velocity, Determination, Rockets, Astronomical observatories.

Contents:
Determining the scale of astrophotographs and the angular velocity of a fast-moving celestial body, by

A. A. Kiselev and B. A. Firago
Modification and study of the shutter of the NAFA 3c/25 camera at Kharkov, by V. I. Garazha and E. F. Chaikovskii
Observations of satellities with a TZK telescope fitted with a camera for photographing readings, by B. Balazh
An instrument for recording the brightness of a satellite and determining the period of change, by L. T. Bukhantsev and V. M. Kharaput
The period of change of brightness of the rocket of the third Soviet artificial earth satellite from observations at the Sofia Astronomical Observatory
The results of photographic observations of artificial earth satellities, by A. F. Chervyakova
Engelhardt Astronomical Observatory, Kazan, by I. Maksyutov
Tashkent Astronomical Observatory of the Academy of Sciences of the Uzbek SSR, by A. A. Latypov.

TASS REPORT: FIRST FLIGHT TO THE PLANET MARS. [1962] [15]p.
Available on loan from SLA 63-10509

Trans. from Pravda [Moscow] (USSR) 1962, no. 349(16205) 15 Dec.

DESCRIPTORS: *Space flight, *Satellite vehicles, Interplanetary trajectories, *Extraterrestrial bases, *Space probes, Planets, *Mars, Exploration, Cosmic rays, Astrophysics.

Aksenov, E. P., Kurnosova, L. V. and others.
GENERAL SOLUTION OF THE PROBLEM OF THE MOTION OF AN ARTIFICAL SATELLITE IN THE NORMAL FIELD OF THE EARTH'S ATTRACTION [AND] DETECTION OF RADIATION ANOMALIES OVER THE SOUTH ATLANTIC AT HEIGHTS OF 310-340 KM. 18 Oct 62 [20]p. 16 refs. FTD-TT-62-694; AD-288 521.
Order from OTS or SLA $1.60 63-13381

Unedited rough draft trans. of Iskusstvennye Sputniki Zemli (USSR) 1961, v. 8, ##p. 64-71 and 90-93.
##Another trans. is available from OTS $0.50 as 62-11687, APL/JHU TG-230-T298, 17 May 62, 11p.

DESCRIPTORS: *Satellites (Artifical), *Satellite vehicle trajectories, Gravity, *Equations of motion, Cosmic rays, *Cosmic ray telescopes, Atlantic Ocean, Magnetic fields.
Among the apparatus placed on board the second Soviet spaceship was a gas-discharge counter telescope for recording the total intensity of cosmic radiation. Results are cited pertaining to the abnormally large telescope count which was observed during the flight of the spaceship over certain regions of the earth. (Kurnosova, et. al.) For abstract of Aksenov, et. al. see Technical Translations 8: 566, 1962.

Frank-Kamenetskii, D. A.
PHYSICAL PROCESSES IN STELLAR INTERIORS. 1962, 337p. 281 refs. NASA TT F-124; PL-480 NASA.
Order from OTS $3.50 63-11175

Trans. of mono. Fizicheskie Protsessy Vnutri Zvezd, Moscow, 1959 [543p.].

DESCRIPTORS: *Stars, Physics, Astronomical data, Theory, Statics, Dynamics, Star models, Energy, *Nuclear reactions, Beta particles, Protons, Hydrogen, *Sun, Periodic variations, *Chemical elements, Atomic transmutation, *Quantum mechanics.

Chapter I gives a brief survey of astronomy and observational astrophysics for the benefit of the physicists. Chapter II gives an elementary review of the fundamental physical notions which make up the subject-matter of the book without going into mathematical details and derivations. Chapters III and IV give an introduction to the theory of internal constitution of stars. The second part contains fundamental theoretical material. The subject matter is purely physical. Chapter V is devoted to the theory of radiative transport. In Chapter VI cross sections are obtained from the quantum-mechanical theory of interaction of radiation and matter. In Chapter VII the thermo-nuclear reactions which are the sources of stellar energy are considered. In Chapter VIII an investigation is made of a nuclear process which is of particular importance for hydrogen reactions in stars. In the third part the physical results are compared with the astronomical facts. In Chapter IX the properties of gas spheres consisting of pure hydrogen are studied and compared with the properties of real stars. In Chapter X models of the Sun based on modern physical and astrophysical ideas are described. The fourth part is of a more descriptive nature; it gives a brief review of the fundamental physical ideas about non-stationary processes in stars.

Severnyi, A. B.
AN INVESTIGATION OF MAGNETIC FIELDS ASSOCIATED WITH SOLAR FLARES [Issledovanie Magnitnykh Polei, Svyazannykh so Vspyushkami na Solntse]. 8 Oct 62 [46]p. 10 refs. FTD-TT-62-99.
Order from OTS or SLA $4.60 63-13384

Unedited rough draft trans. of [Akademiya Nauk SSSR]. Krymskaya Astrofizicheskaya Observatoriya. Izvestiya, 1960, v. 22, p. 12-41.
Another trans. is available from OTS or SLA $5.60 as 61-28637, CSIRO Trans-5157 [1961] [60]p.

DESCRIPTORS: *Solar flares, *Magnetic fields, Intensity, Measurement, Recording devices.

For abstract see Technical Translations 6:881, 1961.

BEHAVIORAL SCIENCES

Tsander, F. A.
FRIDRIKH ARTUROVICH TSANDER, THE FIRST ENGINEER IN ASTRONAUTICS (AUTOBIOGRAPHICAL DATA). 10 Dec 62 [7]p. JPRS: 16612.
Order from OTS or SLA $1.10 63-13494

Trans. of Tekhnika Molodezhi (USSR) 1962 [v. 30] no. 9, p. 27.

DESCRIPTORS: *Engineering personnel, *Astronautics.

Psychology

Belov, D. M., Krylov, S. S., and Snegirev, E. A.
AN AUTOMATIC PROGRAMMING DEVICE FOR INVESTIGATING MOTOR DEFENSIVE CONDITIONED REFLEXES. 7 Jan 63 [13]p. 5 refs. JPRS: 16994.
Order from OTS or SLA $1.60 63-13837

Trans. of #Zhurnal Vysshei Nervnoi Deyatel'nosti (USSR) 1962, v. 12, no. 5, p. 969-974.

DESCRIPTORS: *Conditioned reflex, *Recording devices, Stimulation, Programming, Electronic equipment.

The proposed device for the study of conditioned motor reflexes in cats and dogs (the animals are allowed free movement) is fully automatic and its programming unit makes use of magnetic tape (a phonograph record can also be employed) on which sinusoidal oscillations of a given frequency are recorded. Moreover, the device permits the recording of the animal's movements, the time of action of the stimuli, and other data on a very short length of movie film. The automatic device performs the following automatic functions: (1) activates stimuli in any sequence and in any combination on a programmed basis (stereotype); (2) cuts off conditioned stimulus upon the animal's fulfillment of the objective; (3) transmits unconditioned stimuli to that section of the test chamber where the animal has been acted upon by conditioned stimuli; and (4) records on oscillograph or kymograph the time of stimulus action and the animal's motor reactions, with a minimum expenditure of movie film.

Lobanova, N. V. and Rautyan, G. N.
DETERMINATION OF THE SPECTRAL SENSITIVITY OF RETINA RECEIVERS IN EXPERIMENTS WITH DICHROMATES. 9 Jan 63 [11]p. 14 refs. JPRS: 17054.
Order from OTS or SLA $1.10 63-13830

Trans. of Akademiya Nauk SSSR. Doklady, 1962, v. 146, no. 5, p. 1193-1196.

DESCRIPTORS: Determination, *Retina, *Sensitivity, Sensory perception, *Color vision, Photoreceptors, Anatomy, Physiology, Vision.

Popov, N. S.
ON THE ESSENCE OF THE MIND AND THE OBJECT OF PSYCHOLOGY. 26 July 60 [21]p. JPRS: 5133.
Order from OTS or SLA $2.60 60-41051

Trans. of Filosofska Misul (Bulgaria) 1959, v. 15, no. 5 p. 81-93.

DESCRIPTORS: *Psychology, *History, Religion, Philosophy, Communism, Science, Scientific research, *Reasoning, *Behavior, Nervous system, Adjustment (Psychology).

MEDICAL AND BIOLOGICAL ASPECTS OF USSR SPACE FLIGHTS. 16 Nov 62 [21]p. JPRS: 16227.
Order from OTS or SLA $1.60 63-13359

Trans. of Meditsinskii Rabotnik (USSR) 1962 [v. 25, no. 72] 17 Aug, p. 3.

DESCRIPTORS: *Space flight, *Space medicine, Life support, *Telemeter systems, Radio, *Cybernetics, Controlled atmospheres, Spaceships, Space biology.

Contents:
Progress in space medicine, by I. Akulinichev
Radio and space medicine, by G. Novikov
Cybernetics in space, by A. Prokhorov and I. Zakharov
The atmosphere in a space ship, by Yu. Ivanov
Biological problems in astronautics, by A. Makarchenko.

PRINCIPLES OF LIFE SUPPORT IN SPACE BASED ON SOVIET OPEN LITERATURE PUBLISHED IN CONNECTION WITH THE VOSTOK-3 AND VOSTOK-4 LAUNCHINGS. Rept. on AID Work Assignment no. 22 [30]p. 70 refs. AID rept. 62-194; AD-291 910.
Order from OTS or SLA $2.60 63-13711

DESCRIPTORS: *Space flight, *Space biology, Space medicine, *Spaceships, Safety, Space navigation, *Ear, Stability, Body, *Adaptation (Physiology), Weightlessness, *Life support, *Radiation hazards, Automation, *Space environmental conditions, *Astronauts, Psychology.

Contents:
Analyst's comments and principal data discussed in the report
General data on the Vostok-3 and Vostok-4 flights and their purpose
General principles of flight safety
Special training for improving the adaptability of the vestibular apparatus to weightlessness
Environmental control systems
Weightlessness
Overloads
Radiation and meteorite hazard
Work, meals, and rest aboard a spaceship
Automation and the cosmonaut
Psychology and cosmonautics
Other principles in life support for missions to deep space.

SCIENCE AND LIFE; SPECIAL NUMBER ON THE NATURE OF LIFE (Nauka i Zhizn', Spetsial'nyi Nomer o Zhivoi Priroda). 20 Nov 62 [255]p. JPRS: 16270.
Order from OTS or SLA $16.50 63-13302

Trans. of Nauka i Zhizn' (USSR) 1962 [v. 29] no. 4, p. 1-112.

DESCRIPTORS: *Agriculture, Metabolism, *Viruses, *Cells (Biology), *Biochemistry, *Amino acids, Proteins, Enzymes, *Nucleic acids, *Genetics, *Chromosomes, *Dextran, Hydrogen, Atoms, *Ultraviolet radiation, *Plants, Seeds, *Platyhelmenths, *Soils, Weather forecasting, *Brain, Conditioned reflex, Growth, Diseases, *Psychotropic agents, *Neuropsychology, *Hearing, *Formicidae, *Artificial intelligence.

Contents:
The task of the entire party, and the whole nation is to attain a vigorous advance of agriculture
Biology, the science of life, by A. N. Studitskii
Our press conference
Glossary for the articles on molecules
The chemistry of life, by V. A. Engel'gardt
The RNA code has been unravelled for all twenty aminoacids, by V. A. Engel'gardt
From the lecturer's notes
How chromosomes function, by I. I. Kiknadze
The impunity of viruses evidently is coming to an end, by V. Azernikov
Dextran and its transformations, by E. L. Rozenfel'd
Historical sketch of cell theory
The cell is a self-regulating system, by G. M. Frank
The "hydrogen atom" model of biology, by V. V. Chauchanidze and K. S. Kvinikhidze
Ultraviolet scalpel, by S. S. Chakhotin
Introduction to section on the organism
Stability and mutability; the unity of opposites in living organisms, by L. A. Tsenkevich
The microscope elucidates frost-resistance, by P. A. Genkel'
Planting one month earlier returns a two-fold increase
Polyploidal beet lays claim to the championship, by A. N. Lutkov
Scientific curiosities
The planaria puzzles scientists, by A. Kestler
The chief means of production in agriculture is soil, by S. S. Sovolev
Laboratory of the nature-lover
Inverting root-crop plantings increases yield, by A. Popovskii
Patents of nature, I
Weather forecasters of nature, by D. Zuev
The brain
The human brain
Headquarters of the brain, by L. P. Latash
The brain: its phylogenesis and its ontogenesis, by I. Glezer
Cerebral sites of disease, by A. M. Pulatov
Stereotaxis, by E. I. Kandel'
Psychopharmacology, by V. V. Zakusov and S. V. Anichkov
The experiments of Doctor Delgado, by E. Mishel'
Gymnastics of memory, by G. Podinskii
Training the memory
Our hearing, by E. Orlov
Operation "formica", by I. Khalifman
Notes for nature lovers
Robi, by I. Varshavskii
Thinking machines, by V. I. Varshavskii
Scientific notes from abroad
Patents of nature, II
Metamorphoses of nature, by V. A. Korol'kov

SOVIET MANNED SPACE FLIGHT, LIFE SUPPORT SYSTEMS, MEDICAL AND BIOLOGICAL ASPECTS OF THE VOSTOK-3 AND VOSTOK-4 FLIGHTS BASED ON SOVIET OPEN-LITERATURE AUG-OCT 62. Rept. on AID Work Assignment no. 22. Nov 62 [28]p. 43 refs. AID rept. 62-191; AD-291 911.
Order from OTS or SLA $2.60 63-13710

DESCRIPTORS: *Space flight, *Space biology, *Space medicine, Life support, *Closed-cycle ecological systems, Safety, Spaceships, Design, *Adaptation (Physiology), *Space navigation, Weightlessness.

Contents:
Introduction: the flights, objectives, achievements
Preparation of the flights
Medical aspects of the flights
Cabin ecology
Problems of interplanetary flight.

Bassin, F.
CONSEQUENCES OF JOINT SESSION OF ACADEMY OF SCIENCES AND ACADEMY OF MEDICAL SCIENCES USSR. 7 Jan 63 [7]p. JPRS: 16990.
Order from OTS or SLA $1.10 63-13854

Trans. from Meditsinskii Rabotnik (USSR) 1962 [v. 25] no. 47(2107) p. 2.

DESCRIPTORS: Conferences, *Psychology, *Physiology.

The trend of discussion at the session, dealing with psycho-physiology, is outlined. A return to "...the true spirit of Pavlov's teaching ..." is noted after "... a number of serious digressions ... influenced by the general conditions created by the Stalin cult of personality...".

Bei-Bienko, G. Ya. and Mishchenko, L. L.
GRASSHOPPERS OF THE FAUNA OF THE USSR AND ADJACENT LANDS, PT. II [Saranchevye Faune SSSR i Sopredel'nykh Stran, chast II] tr. by R. Ericson. Feb 60 [175]p. (figs. omitted).
Order from OTS or SLA $12.50 62-15634

Trans. of [Opredeliteli po Faune SSSR] 1951, v. 40, p. 385-667.

DESCRIPTORS: *Grasshoppers, Classification, Anatomy, Distribution, Morphology,

Gurobskii, N. N. and Gerd, M. A.
WEIGHTLESSNESS. 30 Oct 62 [15]p. FTD-TT-62-1310.
Order from OTS or SLA $1.60 63-13883

Unedited rough draft trans. of Nauka i Zhizn' (USSR) 1961 [v. 28] no. 11, p. 86-91.

DESCRIPTORS: *Space flight, Space environmental conditions, *Weightlessness, Space medicine, *Life support, Spaceship cabins.

Lishev, M. N. and Rimsh, E. Ya.
PATTERNS AND PRINCIPLES IN THE DYNAMICS OF ABUNDANCE OF BALTIC SALMON: CONCLUSIONS (Nekotore Zakonomernosti Dinamiki Chislennosti Baltiiskogo Lososya). 1962, 6p. FRBC Trans. Series no. 395.
Order from NRCC NRCC C-4178

Partial trans. (p. 96-101) of V[sesoyuznyi] N[auchno]-I[ssledovatel'skii] Institut [Morskogo] Rybnogo Khozyaistva [i] O[keanografii]. Latviiskoe [Otdelenie]. Trudy (USSR) 1961, v. 3, p. 5-103.

DESCRIPTORS: *Salmon, Fishes, *Fisheries, Baltic Sea Production, Ecology, Water, Temperature, Growth, *Reproduction.

Semkov, B. F.
PHILOSOPHICAL PROBLEMS ON THE ESSENCE OF LIFE. 8 Jan 63 [8]p. JPRS: 17034.
Order from OTS or SLA $1.10 63-13858

Trans. of Akademiya Nauk SSSR. Vestnik, 1962, v. 32, no. 10, p. 105-108.

DESCRIPTORS: Conferences, *Cybernetics, Philosophy, Biology.

A summary of discussions and reports given at a USSR Academy of Sciences conference devoted to the philosophical implications of cybernetics, and the relationships of the inorganic to the organic.

Timofeeva, T. E., Antselevich, V. A., and Matov, V. V.
REMOTE CONTROL DEVICE FOR RECORDING HUMAN ELECTROCARDIOGRAMS [AND] TELEMETRIC INVESTIGATION OF ELECTROCARDIOGRAMS OF ATHLETES. 29 Oct 62 [33]p. 13 refs. FTD-TT-62-803; AD-290 827
Order from OTS or SLA $3.60 63-13376

Unedited rough draft trans. of Novosti Meditsinskoi Tekhniki (USSR) 1960, no. 3, p. 27-45.

DESCRIPTORS: *Electrocardiography, *Electroencephalogy, Bioelectronics, Medical equipment, *Remote control systems, Telemeter systems

Yurkevich, I. D. and Kupchynaw, M. M.
SUMMARY OF THE SCIENTIFIC ACTIVITIES OF ACADEMICIANS AND CORRESPONDING MEMBERS OF THE DEPARTMENT OF BIOLOGICAL SCIENCES OF THE ACADEMY OF SCIENCES BELORUSSIAN SSR. 15 Jan 62 [15]p. JPRS: 12071.
Order from OTS or SLA $1.60 62-15459

Trans. of Akademiya Navuk BSSR, Minsk. Vesti. Seryya Biyalagichnykh Navuk, 1961, no. 2, p. 125-133.

DESCRIPTORS: Scientific organizations, Scientific research, *Biology, Agriculture, *Scientific personnel, *Education, Training.

Anatomy and Physiology

ABSTRACTS FROM EAST EUROPEAN SCIENTIFIC AND TECHNICAL JOURNALS NO. 38 (BIOLOGY AND MEDICINE SERIES). 3 Jan 63 [44]p. JPRS: 16947.
Order from OTS or SLA $4.60 63-13842

Consists of abstracts of articles from the scientific and technical journals of Bulgaria, Poland, and Yugoslavia.

DESCRIPTORS: *Abstracts, Literature, *Biology, *Medicine, Bulgaria, Poland, Yugoslavia, *Veterinary medicine, Medical personnel, Diseases, Pancreas, Ulcers, Adrenal cortex, Pyruvic acid, Intestines, Diagnosis, Sarcoma, Carbohydrates, Metabolism, Steroids, Hormones, Pharmacology, Therapy, Endocrine glands, Surgery, Penicillins, Venereal diseases, Analgesics, Radiation effects, Vagina, Secretion.

LIFE SUPPORT SYSTEMS (A. BIOSCIENCES): SOVIET LITERATURE. Monthly rept. no. 10 on AID Work Assignment no. 22: 31 Mar 62 [26]p. 8 refs. AID rept. 62-61; AD-276 171.
Order from OTS or SLA $2.60 62-25148

DESCRIPTORS: *Life support, *Literature, *Space medicine, Effectiveness, *Space flight, Survival, *Radiobiology, Biology, Hyperthermia, Blood, Literature.

Contents:
Space medicine and biology
Space physiology.

LIFE SUPPORT SYSTEMS. A. BIOSCIENCES: SOVIET LITERATURE. Monthly rept. no. 12 on AID Work Assignment no. 22. 8 Aug 62 [22]p. 8 refs. AID rept. 62-110. AD-283 001
Order from OTS or SLA $2.60 62-32781

DESCRIPTORS: *Life support, *Space medicine, Biology, *Physiology, *Radiation effects, Nucleic acids, Thymus gland, Nervous system, Resistance, Blood circulation, *Radiation injuries, Muscles, *Radiation sickness, Hemopoiesis, Leukocytes.

Contents:
Space medicine and biology
Space physiology.

SCIENTIFIC CONFERENCE ON PROBLEMS OF PHYSIOLOGICAL ACOUSTICS IN LENINGRAD, 16-19 JUNE 54. [1960] 7p. 7 refs. MDF Recon-1.
Order from OTS $0.50 62-11525

Trans. of Prob[lemy] Fiziol[ogicheskoi] Akust[iki] (USSR) 1955, v. 3, p. 122-125.

DESCRIPTORS: Hearing, *Physiology, *Acoustics, Theory, Conferences.

SOVIET MANNED SPACE FLIGHT: INDIVIDUALS AND COMPONENTS OF THE USSR SPACE COMMAND SYSTEM, BASED ON SOVIET OPEN LITERATURE 1961-62. 12 Sep 62 [29]p. 70 refs. AID rept. 62-129, suppl. to AID rept. 62-25; AD-285 329.
Order from OTS or SLA $2.60 62-33373

DESCRIPTORS: *Space flight, *Command systems, Military personnel, *Astronauts, *Manned spacecraft, Training, Literature.

Contents:
Individuals mentioned by Soviet writers in connection with the manned space flight program
Additional information on the Soviet Cosmonaut training system
Analyst's comments.

Fadeev, V. G., Pechatin, A. A., and Surovikin, V. D.
PHYSIOLOGICAL CONDITIONS OF MAN'S STAY UNDER WATER [AND] POSSIBLE DISEASES AND THEIR PREVENTION. 25 Jan 62, 86p. JPRS: 12223.
Order from OTS $2.25 62-11128

Trans. of mono. Chelovek Pod Vodoi (Man under Water) Moscow, 1960, chaps. 3 and 6, p. 53-97, 124-147.

DESCRIPTORS: *Physiology, *Adaptation (Physiology), Man, *Underwater, *Diving, Vision, Hearing, Pressure, Blood circulation, Respiration, Color vision, Gastrointestinal system, Excretion, *Decompression sickness, Gas embolism, Nitrogen, Diseases, *Body temperature, Inhibition.

Grigor'eva, T. A.
THE INNERVATION OF BLOOD VESSELS. 1962, approx. 320p.
Order from MACM approx. $10.00

Trans. of unidentified Russian mono., n.p., n.d.

DESCRIPTORS: *Nerves, *Blood vessels, Physiology, Morphology, Autonomic nervous system, Ganglia.

Kvasov, D. G. and Trofimova, T. A.
ONE OF THE CONDITIONS FOR THE TRANSFER OF VASCULAR REFLEXES FROM PRESSOR INTO DEPRESSOR. [1962] 5p. (figs. omitted).
Order from OTS or SLA $1.10 62-20177

Trans. of Byull[eten'] Eksp[erimental'noi] Biol[ogii] i Med[itsiny] (USSR) 1955, v. 39, no. 1, p. 19-21.

DESCRIPTORS: Reflexes, *Cardiovascular system, *Stimulation, *Nerves, Legs, *Blood pressure, Autonomic nervous system, Adaptation (Physiology).

This investigation attempts to establish the role of interoceptive stimulation in determining the nature of the vascular reaction to stimulation of the sciatic nerve. (Author)

Miodonski, J.
REACTIONS OF THE SEMICIRCULAR CANALS AND OTOLITHS TO ROTATIONAL STIMULI, tr. by E. R. Hope. Oct 62, 2p. DSIS T 6 Pol.
Order from NRCC NRCC C-4183

Trans. of Acta Physiologica Polonica, 1960, v. 11, p. 840-841.

DESCRIPTORS: *Adaptation (Physiology), *Ear, Stimulation, *Rotation, Stability, *Auditory nerve, Medical equipment.

Zagorul'ko, L. T.
AFTERIMAGES IN THE VISUAL SYSTEM. 7 Sep 62 [40]p. 89 refs. FTD-TT-62-492; AD-286 566.
Order from OTS or SLA $3.60 63-13220

Unedited rough draft trans. of Uspekhi Sovremennoi Biologii (USSR) 1948, v. 25, no. 2, p. 231-250.

DESCRIPTORS: *Afterimages, Images, Visual perception, *Vision, Physiology, Sensory mechanisms, Conditioned reflex, Reflexes.

Biochemistry

Asmaev, P. G.
NEW FERMENTATION CONDITIONS FOR CIGARETTE TOBACCO. [1962] 16p. 7 refs.
Order from OTS or SLA $1.60 62-18836

Trans. of Tabak (USSR) 1960, v. 21, no. 2, p. 43-46. Another trans. is available from K-H $20.00 as K-H-11480-b [1962] 16p.

DESCRIPTORS: *Cigarettes, *Tobacco, Smokes, *Fermentation.

Pinevich, V. V.
CHLORELLA AND ECONOMIC UTILIZATION OF UNICELLULAR ALGAE (Khlorella i Khozyaistvennoe Ispol'zovanie Odnokletochnykh Vodoroslei). 4 Dec 61, 19p. Trans. A-1322.
Order from OTS or SLA $1.60 62-23284

Trans. of Zemledelie (USSR) 1961, v. 23, no. 5, p. 42-49.

DESCRIPTORS: *Algae, Economics, *Cultivation, Agriculture, *Food, Biosynthesis, Decomposition, Organic compounds, Storage, *Solar energy, Water, Purification.

Sukhanova, I. V.
MEETING OF THE PRESIDIUM OF THE ACADEMY OF SCIENCES OF THE USSR DEVOTED TO THE PROBLEM OF MOLECULAR BIOLOGY, 11 MAY 62. 4 Jan 63 [15]p. JPRS: 16987.
Order from OTS or SLA $1.60 63-13848

Trans. of Akademiya Nauk SSSR. Izvestiya. Seriya Biologicheskaya, 1962 [v. 27] no. 5, p. 806-809.

DESCRIPTORS: *Cytochemistry, Biology, Molecules, Conferences.

Wittmer, G.
CYTOLOGICAL ACTIVITY OF THE OIL EXTRACTED FROM AGED AND FRESH SEEDS OF NICOTIANA TABACUM L. [1962] 11p.
Order from K-H $13.75 K-H 11627 i

Trans. of [il] Tabacco (Italy) 1961, v. 65, no. 699, p. 229-237.

DESCRIPTORS: *Oils, *Seeds, Cells (Biology),*Tobacco, Aging (Physiology).

Botany

Bazhanova, N. V. and Khenokh, M. A.
THE EFFECT OF ULTRASONIC VIBRATIONS ON THE CHLOROPHYLL-PROTEIN COMPLEX. [1962] 7p.
Order from ATS $11.00 ATS-98P59R

Trans. of Botan[icheskii] Zhur[nal] (USSR) 1961, v. 46, no. 7, p. 1001-1006.

DESCRIPTORS: Plants, Biochemistry, *Ultrasonic radiation, *Chlorophyll, *Proteins, Radiation effects.

Kursanov, A. L., Nichiporovich, A. A. and others.
PROBLEMS OF PHOTOSYNTHESIS: REPORTS OF THE ALL-UNION CONFERENCE ON PHOTOSYNTHESIS (NO. 2) MOSCOW, 21-26 JAN 57. Aug 62, 1048p.
NASA N63-10210.
Order from OTS $11.00/set AEC-tr-4501(bks. 1-2)

Trans. of mono. Problem Fotosinteza: Doklady na 2-oi Vsesoyuznoi Konferentsii po Fotosintezu, Moscow, 1959.

DESCRIPTORS: Plants, *Photosynthesis, Conferences, Reports, *Photochemistry, *Spectroscopy, *Plant pigments, *Chlorophylls, Molecular structure, *Biochemistry, Chemistry, Chemical reactions, Chemical analysis, *Algae, *Microorganisms, *Physiology, *Ecology, Growth.

Contents:
Photochemistry and spectroscopy of plastid pigments
Formation, state and transformation of pigments in the plant
Structure, biochemistry and chemistry of chloroplasts
Mechanism and products of photosynthesis
Photosynthesis of aqueous plants and microorganisms
Physiology and ecology of photosynthesis
Growth of plants in artificial light

Smirnov, A. I., Brobglav, M. A., and Erygin, P. S.
AGE CHARACTERISTICS OF TOBACCO LEAVES. [1962] 125p.
Order from K-H $156.25 K-H 3881-b

Trans. of [Vsesoyuznyi Nauchno-Issledovatel'skii Institut Tabachnoi i Makhorkovoi Promyshlennosti. Trudy] (USSR) 1928, v. 46, p. 1-49.

DESCRIPTORS: *Age, *Tobacco.

Smirnov, A. P.
CONTRIBUTION TO QUESTION OF STRENGTH AND ELASTICITY OF TOBACCO LEAF. [1962] 15p.
Order from K-H $18.75 K-H-5461-e

Trans. of [Vsesoyuznyi Nauchno-Issledovatel'skii Institut Tabachnoi i Makhorkovoi Promyshlennosti. Trudy] (USSR) 1931, v. 81, p. 93-102.

DESCRIPTORS :*Tensile properties, *Elasticity, *Tobacco, Plants

Sudyna, O. G. and Dovbish, K. P.
EFFECT OF LIGHTING CONDITIONS ON THE CONVERSION OF GREEN PIGMENTS. 19 Sep 62 [17]p. 17 refs. FTD-TT-62-1203; AD-287 709.
Order from OTS or SLA $1.60 63-13593

Unedited rough draft trans. of Ukrayins'kyi Botanichnyi Zhurnal (USSR) 1962, v. 19, no. 3, p. 10-19.

DESCRIPTORS: *Plant pigments, Prophyrins, *Chlorophylls, Biosynthesis, *Photochemical reactions, Light, *Plants (Botany), Wheat, Metabolism, Chromatographic analysis, Absorption spectra.

Investigations do confirm the idea that the final stage of chlorophyll biosynthesis takes place accordance: protochlorophyllide→chlorophyllide —› chlorophyll. In etiolated wheat shoots from porphyrine pigments is accumulated mainly protochlorophyllide. In green wheat shoots, which for a day or more were exposed to light, in the darkness the predominant phytol-free porphyrine pigment is chlorophyllide. Previous illumination of wheat shoots does affect the ability of the plants in restoring in darkness protochlorophyllide into chlorophyllide. (regeneration) To identify porphyrine pigments it is necessary to employ the method of paper chromatography in unison with spectrophotometerings. (Author)

Microbiology

Malek, Ivan.
THE RESISTANCE OF BACTERIA CULTIVATED IN A STREAM HABITAT (Resistence Bakterii Pestovanych v Proudicim Prostredi) tr. by Vedral. 13 Jan 61, 9p. (illus. omitted) 4 refs. H 7445.
Order from OTS or SLA $1.10 62-25259

Trans. of Ceskoslovenska Biologie, 1953, v. 2, no. 2, p. 68-75.

DESCRIPTORS: *Bacteria, Ecology, *Growth, *Culture media, *Temperature, Escherichia, Salmonella, Adaptation (Physiology), Formaldehyde, Methanols, Bactericides.

We cultivated ESCHERICHIA COLI and SALMONELLA ENTERITIDIS in a stream habitat and determined the resistance shown by the cultivated bacteria to the effects of 55°C temperature and to those of a 1% formol solution. Under the conditions produced by cultivation in a stream habitat, an absolute majority of the bacteria in the culture is far more sensitive to the effects of heat and of formol than were bacteria from static cultures. This sensitivity (TN: vulnerability) of the bacteria to the effects of heat and of formol led to the conclusion that the method of cultivation in a stream habitat produces in the culture conditions that are conductive to letting the bacteria remain (TN: for a prolonged period) in the phase of maximum metabolism, i.e. the so-called period of physiological youth. (Author)

Shostakovskii, M. F. and Bogdanov, I. F.
SOME PROPERTIES OF VINYL ETHERS AND THEIR POLYMERS. I. BIOLOGICAL PROPERTIES. [1962] 2p. 7 refs.
Order from OTS or SLA $1.10 62-16819

Abstract trans. of Zhurnal Prikladnoi Khimii (USSR) 1943, v. 16, no. 1/2, p. 66-70.

DESCRIPTORS: *Vinyl radicals, *Ethers, *Polymers, Butyl radicals, Bactericides.

Shtern, E. A.
SEROLOGICAL CHARACTERIZATION OF NODULE BACTERIA, II. (Serologicheskaya Kharakteristika Kluben'kovykh Bakterii, II) tr. by B. Ribush. [1962] [15]p. (foreign text included) 1 ref. [CSIRO] Trans. no. 5909.
Order from OTS or SLA $1.60 62-32969

Trans. of Mikrobiologiya (USSR) 1953, v. 22, no. 6, p. 656-662.

DESCRIPTORS: *Azotobacter, Serum, Antigens, Antibodies, *Classification.

Nodule bacteria have a highly complex set of thermally unstable and thermally stable antigens. However, bacteria of the same plant are not identical serolologicaly. Different cultures form two or three serological subgroups, but they are linked through antigens held in common. Not only different strains of a single variety of Nodule bacteria have common antigens but even bacteria of different legume species. Study of the antigens of Nodule bacteria shows that the microorganisms are serologically interlinked. (Author)

Neurology and Psychiatry

Finardzhyan, V. V.
THE INTERACTION OF THE AFFERENT SYSTEMS OF THE CEREBELLUM. 25 Jan 62 [7]p. 6 refs. JPRS: 12216.
Order from OTS or SLA $1.10 62-15787

Trans. of Akademiya Nauk Armyanskoi SSR, Erevan. Doklady, 1961, v. 32, no. 2, p. 123-127.

Portions of this report will not reproduce well.

DESCRIPTORS: *Nervous system, Reaction (Psychology), Cerebral cortex, *Brain, Bioelectronics, *Neuromuscular transmission, Stimulation, Electroencephalography, Nerves, *Reaction time.

Sluchevskii, I. F., ed.
PROBLEMS OF PSYCHIATRY AND NEUROLOGY. 1962, approx. 400p.
Order from MACM $10.50

Trans. of unidentified mono. Transactions of the Leningrad Society of Neurologists and Psychiatrists, v. 3, n.d.

DESCRIPTORS: *Psychiatry, *Neurology, *Infections, Encephalitis viruses, Asthma, Stimulation, Epilepsy, Thrombosis, Arteries, *Brain, Toxicity, Psychoses.

Pathology

ABSTRACTS FROM EAST EUROPEAN SCIENTIFIC AND TECHNICAL JOURNALS NO. 40 (BIOLOGY AND MEDICINE SERIES). 4 Jan 63 [53]p. JPRS: 16969.
Order from OTS or SLA $5.60 63-13849

Consists of abstracts of articles from the scientific and technical journals of Bulgaria, Rumania, and Yugoslavia.

DESCRIPTORS: *Abstracts, *Biology, *Medicine, *Neurology, *Psychiatry, *Microbiology, Parasitology, Epidemiology, Industrial medicine, Communicable diseases, *Bulgaria, *Rumania, *Yugoslavia.

ABSTRACTS FROM EAST EUROPEAN SCIENTIFIC AND TECHNICAL JOURNALS NO. 53 (BIOLOGY AND MEDICINE SERIES). 15 Jan 63 [29]p. JPRS: 17151.
Order from OTS or SLA $2.60 63-15092

Consists of abstracts of articles from the scientific and technical journals of Czechoslovakia and Poland.

DESCRIPTORS: *Abstracts, *Biology, *Medicine, *Czechoslovakia, *Poland, Medical personnel, Hospitals, Training, Psychiatry, Neurology, Ecology, Surgery, Biochemistry, Radiobiology, Pharmacology, Scientific organizations.

ELECTRONIC EFFECTIVENESS TESTING OF COSMETIC TREATMENTS AND PREPARATIONS. Paper from International Congress "CIDESCO" (no. 15) Athens, Aug 61. [1962] 4p.
Order from SLA $1.10 62-14745

Trans. of Seifen-Ole-Fette-Wachse (West Germany) 1961, v. 87, no. 21, p. 677-678.

DESCRIPTORS: *Skin, Diseases, Tests, *Electronic equipment, *Blood circulation Absorption, Drugs, Calorimetry, *Moisture, Potentiometers, Medical equipment.

NEW MEDICAL INSTRUMENTS. 26 Jan 62 [15]p. 7 refs. JPRS: 12174.
Order from OTS or SLA $1.60 62-15679

Trans. of Klinicheskaya Meditsina (USSR) 1960, v. 38, no. 2, p. 143-145; Vestnik Rentgenologii i Radiologii (USSR) 1961 [v. 36] no. 1, p. 60-61; Kazanskii Meditsinskii Zhurnal (USSR) 1961, v. 60 [sic] no. 4, p. 108-110.

DESCRIPTORS: *Medical equipment, *Instrumentation, *Ballistocardiography, Miniature electronic equipment, *Ionization chambers, Pulse analyzers, Velocity, *Blood circulation, Piezoelectric gages.

Contents:
A piezomagnetic sensor for recording ballistocardiograms, by N. S. Fetisov
A miniature semiconductor indicator of ionizing radiation, by B. M. Abakumov
An instrument for determining the velocity of the pulse wave, by S. M. Markuse.

PROBLEMS OF PATHOLOGY OF THE BLOOD AND CIRCULATION, 1959, VOL. 5: SELECTED ARTICLES. 23 Oct 62 [30]p. JPRS: 15850.
Order from OTS or SLA $2.60 62-33604

Trans. of Voprosy Patologii Krovi i Krovoobrashcheniya (USSR) 1959, v. 5, p. 45-68 and 215-216.

DESCRIPTORS: *Pathology, Blood, *Blood circulation, *Body temperature, *Rheumatic fever, *Heat production (Biology), Control, *Fevers.

Contents:
Thermographic observation in rheumatic fever and focal infections, by R. S. Ivanov
On heat regulation, by V. N. Koz'mina-Sokolova
Thermographic observations in febrile patients, by V. N. Koz'mina-Sokolova
Table of contents.

PROBLEMS OF PATHOLOGY OF THE BLOOD AND CIRCULATION, 1961 [VOL. 6]: SELECTED ARTICLES AND INDEX VOLS. 1-6. 26 Oct 62 [33]p. JPRS: 15894.
Order from OTS or SLA $3.60 62-33611

Trans. of Voprosy Patologii Krovi i Krovoobranshcheniya (USSR) 1961 [v. 6] p. 27-32, 113-121, 198-204, 236-240.

DESCRIPTORS: *Pathology, Blood, *Blood circulation, *Medical equipment, *Thermomenters, Body temperature, *Fevers, *Rheumatic fever, Communicable diseases, *Vibration, *Diseases, *Cardiovascular system.

Contents:
Continuous thermography and the thermograph, by V. A. Val'dman
Disorders of heat regulation in rheumatic fever and focal infections, by R. S. Ivanov
Vibration sickness and the vascular system, by V. E. Kozlova
Subject index v. 1-6
Table of contents, v. 6.

WORKS OF THE INSTITUTE OF HIGHER NERVOUS ACTIVITY, PATHOPHYSIOLOGICAL SERIES, 1958, VOL. 5, EXPERIMENTAL INVESTIGATIONS OF DISORDERS IN HIGHER NERVOUS ACTIVITY, tr. by Z. Lothane. 1962, 354p. 305 refs. PL-480 HEW.
Order from OTS $3.50 61-31022

Trans. of Akademiya Nauk SSSR. Institut Vysshei Nervnoi Deyatel'nosti. Trudy. Seriya Patofiziologicheskaya, 1958, v. 5.

DESCRIPTORS: Pathology, Physiology, Psychology, *Nervous system, *Conditioned reflex, *Psychoses, *Reaction (Psychology), Signals, *Cerebral cortex, *Speech disorders, *Alcoholism, Stimulation, Verbal behavior, *Brain, *Injuries, Inhibition, *Psychoneuroses, Spinal cord, Cardiovascular system, *Psychotherapy, *Sleep, Therapy, Hypertension, *Mental disorders.

Contents:
General and specific neurodynamic disturbances in various neuro-psychiatric diseases, by A. G. Ivanov-Smolenskii
The interaction between somatic and vegetative conditioned and unconditioned reactions in catatonic (stuporous) schizophrenia, by L. I. Dmitriev
Investigation of disturbances in joint activity of the cortical signalling systems in catatonic (stuporous) schizophrenia, by L. I. Dmitriev
Characteristics of interaction between the first and second signalling systems following activation of a delusional pathodynamic structure in patients suffering from paranoid schizophrenia, by S. N. Raeva
Characteristics of the pathodynamic structure in paranoid schizophrenia, by A. S. Aslanov
Disturbances in joint activity of first and second signalling systems in catatonic schizophrenia, by E. A. Kostandov
An attempt to investigate the cortical dynamics, and in particular the interaction between signalling systems, in schizophrenia associated with severe speech disorders, by N. N. Zakharova
Disturbances in the joint activity of signalling systems in acute alcoholic hallucinosis, by M. I. Seredina
The effect of verbal stimuli directed at the "sore spot" during joint activity of the first and second signalling systems and on certain vegetative functions in patients suffering from hysteria, by S. N. Raeva
Disturbance in the joint activity of the signalling systems in obsessive-compulsive neurosis and psychasthenia, by M. M. Trunova
Certain characteristics of the joint activity of the first and second signalling systems in the course of late sequelae of closed brain traumata, by A. S. Aslanov
Characteristics of passive (unconditioned) and active (conditioned) inhibition in patients suffering from late sequelae of closed brain traumata, by A. S. Aslanov
Investigation of disturbances in the activity of higher parts of the central nervous system in the early stages of closed brain traumata, by D. N. Krylov
Certain features of higher nervous activity in obsessive-compulsive neurosis associated with the cardiophobic syndrome and functional disturbances in the cardiovascular system, by K. K. Monakhov
Effect of a psychotherapeutic interview in its various forms on the joint activity of the signalling systems in neurotic patients, by N. M. Asatiani
Effect of sleep therapy upon the joint activity of the first and second signalling systems in patients suffering from delirium tremens, by M. I. Seredina

Disturbances of neurodynamics in essential hypertension accompanied by neuropsychiatric disorders, and their therapy based on pathogenic factors, by I. V. Strel'chuk

A study of the nervous mechanisms underlying the action of the word in psychotherapy of neuroses, by I. V. Strel'chuk

Search for a physiologically-based therapy of neuropsychiatric diseases, by A. G. Ivanov-Smolenskii

Bezprozvannyi, B. K. and Zubarchuk, S. K.
HISTOLOGICAL DATA IN KOENIG'S DISEASE. [1962] [16]p. 11 refs. FASEB manuscript no. S 65-2.
Available on loan from OTS 63-15238

Trans. of Vestnik Rentgenologii i Radiologii (USSR) 1962, v. 37, no. 2, p. 37-42.

DESCRIPTORS: Orthopedics, *Diseases, *Bones, Legs, Arms, *Joints (Physiology), Pathology, *Cartilage, Arthritis, Arthroplasty, Fractures (Bone), Surgery, Necrosis, Tissues (Biology)

Bogovskii, P. A.
DECANGEROGENIZATION OF THE PRODUCTS OF BITUMINOUS SHALE. 17 Dec 62 [10]p. 2 refs.
JPRS: 16734.
Order from OTS or SLA $1.10 63-13553

Trans. of Akademiya Nauk SSSR. Vestnik, 1962, v. 32, no. 8, p. 72-75.

DESCRIPTORS: *Sandstone, Shale, Tar, *Cancer, Industrial medicine, Medical research.

It was found that the products of shale treatment containing 10 to 40% high-temperature chamber tar, are just as carcinogenic as whole tar. The carcinogenic activity of a tar is proportional to the temperature at which it was processed, specific gravity, and, to some extent, 3, 4-benzpyrene content. The carcinogenicity of shale bitumens can be reduced by blowing air through them.

Bulatov, P. K.
THE TREATMENT OF BRONCHIAL ASTHMA WITH AIR IONS. [1962] 8p. 12 refs.
Order from OTS or SLA $1.10 62-18254

Trans. of Klin[icheskaya] Meditsina (USSR) 1950, v. 28, [no. 6] p. 72-74.

DESCRIPTORS: Therapy, *Asthma, *Air, *Ions, Particles, Blood chemistry.

Light air ions with a negative sign, utilized without the use of side physical influences or chemical substances, possess a certain physiological action. When a therapeutic dose of light air ions with a negative sign (about 100-150 billion in one session) is utilized, the composition of the blood improves and the resistance of the serum colloids becomes stabilized. The course of treatment for bronchial asthma consists of 10-30 sessions; a stable and prolonged cessation of attacks generally requires the performance of 2-3 courses (with breaks of 20-30 days between them). By the treatment of patients with bronchial asthma we have obtained a prolonged disappearance (more than half a year) of the paroxysms in 35.3% and a reduction in the number and a weakening in the force in 54.9% of patients; the attacks remained unchanged in 7.9%, and aggravation appeared in 1.9% of the patients. (Author)

Emel'yanov, F. V., ed.
CONTROL OF DISEASE COMMON TO MAN AND ANIMALS (ZOONOSES). 10 Dec 62 [174]p. JPRS: 16615.
Order from OTS or SLA $12.50 63-13471

Trans. of mono. Bor'ba s Boleznyami Obshchimi dlya Cheloveka i Zhivotnykh (Zoonozy) Moscow, 1961, 140p. Partial trans. (p. 22-37, 54-116, 123-139) is available from OTS or SLA $9.10 as 62-19778, JPRS-12716, 23 Feb 62 [105]p.

DESCRIPTORS: *Communicable diseases, *Man, *Animals, *Disease vectors, *Veterinary medicine, Sanitary engineering, *Brucellosis, Agriculture, Inhibition, Epidemiology, *Tuberculosis, *Q fever, *Tularemia, *Leukemia, *Plague, *Toxoplasmosis, *Tapeworms, *Spirochetosis, *Trichinosis, *Echinococcosis, Milk, Fish.

Contents:
Preface
Introductory address, by N. F. Rostovtsev
Veterinary and sanitary measures for zoonoses in the USSR, by A. A. Boiko
Problems of zoonotic diseases in the USSR, by S. M. Smirnov
Ways of reducing brucellosis in man, by P. A. Vershilova
Veterinary and sanitary measures to prevent brucellosis in farm animals, by E. S. Orlov
The present status of tuberculosis in farm animals and preventive measures, by I. V. Poddubskii
Veterinary-sanitary and anti-epizootic measures for Q fever in farm animals, by A. P. Zotov
Basic problems in preventing of tularemia in man, by N. G. Olsufiev
Epizootology of tularemia and ways of eradicating it, by K. A. Dorofeev
Leukemia in farm animals, by A. P. Zotov
Prevention and control of leptospirosis in animals and in man, by S. Ya. Lyubashenko
Epidemic and epizootic state of natural plague foci in the Soviet Union, by B. N. Pastukhov
Toxoplasmosis, by D. N. Zaskhin
Eradication of taeniasis, by V. P. Pod'yapel'skaya
Eradication of trichinosis, by N. N. Plotnikov and V. A. Lokhmansnko
Latest developments in trichinelloscopy of pork, by a I. V. Orlev
The possibility of examining esophageal muscles instead of crura of the diaphragm for trichinella, by N. E. Kosminkov
Epizootology and epidemiology of echinococcosis in the light of the latest scientific evidence, by A. M. Petrov
Veterinary-sanitary inspection of milk and milk products for zoonotic diseases, by V. P. Koryazhnov
Veterinary-sanitary examination of zoonosis of fish, by S. Goreglyad.
(See also 62-19778)

Epshtein, I. I.
RADIOLOGIC DIAGNOSIS OF CHRONIC SUBDURAL HEMATOMA. [1962] [4]p. FASEB manuscript no. S 70-2.
Available on loan from OTS 63-15202

Trans. of Vestnik Rentgenologii i Radiologii (USSR) 1962, v. 37, no. 1, p. 68-69.

DESCRIPTORS: *Tumors, *Brain, *Diagnosis, X-rays, *Blood vessels, Pathology, Hemorrhage, Morphology.

Gol'dshtein, L. M., and Prokof'eva, E. I.
POSSIBILITIES OF FLUOGRAPHY AND X-RAY CINEMATOGRAPHY FOR DETECTING CANCEROUS AND NONCANCEROUS DISEASES OF THE LUNGS, ESOPHAGUS AND STOMACH IN PROPHYLACTIC EXAMINATIONS. [1962] [25]p. (1 ref. omitted) 18 refs. FASEB manuscript no. S 64-2.
Available on loan from OTS 63-15240

Trans. of Vestnik Rentgenologii i Radiologii (USSR) 1962, v. 37, no. 2, p. 3-10.

DESCRIPTORS: *Medical examination, Detection, *Cancer, Lungs, Stomach, Esophagus, Thorax, X-rays, Fluoroscopes, Diagnosis, *Photofluorographic cameras, *Television cameras, *Image converter tubes, Medical equipment.

Klyueva, N. G. and Roskin, G. I.
BIOTHERAPY OF MALIGNANT TUMOURS, tr. ed. by W. J. P. Neish. 1962, approx. 350p.
Order from MACM $12.00

Trans. of unidentified Russian mono., n.p., n.d.

DESCRIPTORS: *Biochemistry, *Cancer, *Therapy, Antibiotics, Protozoa, Trypanosoma, Cells (Biology).

Kononova, E. S.
COMPLICATIONS IN HYSTEROSALPINGOGRAPHY. [1962] [9]p. 7 refs. FASEB manuscript no. S 69-2.
Available on loan from OTS 63-15239

Trans. of Vestnik Rentgenologii i Radiologii (USSR) 1962, v. 37, no. 2, p. 47-49.

DESCRIPTORS: Medical examination, Uterus, *Reproductive system, *Women, *X-rays, Iodized oil, Injection, Blood vessels, Obstruction (Physiology), Pathology, Epithelium, Permeability, *Embolism.

Langhans.
PRIMARY CANCER OF THE TRACHEA AND BRONCHI. [1962] 21p.
Order from K-H $26.25 K-H 3344 c

Trans. of [Virchow's] Archiv für Path[ologische] Anat[omie] und Physiol[ogie] und Klin[ische] Med[izin] (Germany) 1871 [v. 53, no. 4] p. 470-484.

DESCRIPTORS: *Cancer, *Respiratory system.

Malizia, E. and Svihla, G.
APPLICATIONS OF MICROPHOTOGRAPHY BY ULTRAVIOLET RAYS WITH TRANSPOSITION OF COLOR TO THE STUDY OF GLOMERULAR HYPERTROPHY AND INTRAGLOMERULAR CIRCULUS. [1962] 3p. 3 refs.
Order from SLA $1.10 62-18286

Trans. of Società Italiana di Biologia Sperimentale. Bollettino, 1955, v. 31, no. [9]/10 [p. 1265-1266].

DESCRIPTORS: *Ultraviolet radiation, Testosterone, *Microphotography, Colors, Diseases, Kidneys, *Nephritis.

Malizia, E.
ULTRAVIOLET ABSORPTION ON THE STROMA OF GLOMERULES OF CHICKENS TREATED WITH CORTISONE. [1962] 5p. 5 refs.
Order from SLA $1.10 62-18290

Trans. of Società Italiana di Biologia Sperimentale. Bollettino, 1955, v. 31, no. [9]/10 . p. 1263-1264.

DESCRIPTORS: *Ultraviolet radiation, *Microphotography, Pathology, *Kidneys, *Nephritis, *Cortisone, Diagnosis, Diabetes, Arteriosclerosis.

Petrov, N. N.
CANCER: A GENERAL GUIDE TO RESEARCH AND TREATMENT, tr. ed. by W. J. P. Neish. 1962, approx. 350p.
Order from MACM $12.00

Trans. of unidentified Russian mono., n.p., n.d.

DESCRIPTORS: *Cancer, Therapy, *Cancer research, *Tumors, Genetics, Etiology, Nervous system, Endocrine, Diagnosis, Radiation therapy, Biochemistry, Growth.

Safonov, Yu. D.
ON THE METHOD OF RECORDING AND ANALYZING BALLISTOCARDIOGRAM RATES IN VALVULAR HEART DISEASES. 6 Feb 62 [14]p. 16 refs.
JPRS: 12344.
Order from OTS or SLA $1.60 62-15959

Trans. of Terapevt[icheskii] Arkhiv (USSR) 1959 [v. 31] no. 7, p. 53-60.

DESCRIPTORS: *Ballistocardiography, Diseases, *Heart, Vibration.

Speed ballistocardiography is a valuable auxiliary diagnostic method in examining patients with valvular defects of the heart. Changes in hemodynamics in valvular defects of the heart possess characteristic ballistocardiographic features in the absence of severe decompensation. In the formation of cardiac defect after the first rheumatic attack alterations sometimes appear on the ballistocardiogram before the usual clinical deviations. Recording of the speed ballistocardiogram without the use of electric filters with high capicitance capacitors is more desirable owing to greater diagnostic value. Hemodynamic disturbances register well on the ballistocardiogram when the method of dual mechanical dampening is used. (Author)

Shechter, Moshe.
ON THE PROBLEM OF SMOKING. [1962] 8p.
Order from K-H $10.00 K-H 5758 d

Trans. of Harefuah (Israel) 1956, v. 51, no. 4, p. 87.

DESCRIPTORS: *Cigarettes, *Smokes, Nicotine.

Studenikin, M. Ya. and Kalyuzhnaya, R. A.
SUMMARY OF SCIENTIFIC RESEARCH IN PEDIATRICS IN 1960 AND 1961 AND FUTURE TASKS IN THE FIELD. 31 Dec 62 [32]p. JPRS: 16926.
Order from OTS or SLA $3.60 63-13668

Trans. of Akademiya Meditsinskikh Nauk SSSR. Vestnik, 1962, [v. 17] no. 10, p. 3-14.

DESCRIPTORS: *Pediatrics, Scientific research, Communicable diseases, Physical fitness.

Temkin, I. S.
INDUSTRIAL BLADDER CARCINOGENESIS, tr. ed. by W. J. P. Neish. 1962, 373p.
Order from MACM $12.50

Trans. of unidentified Russian mono., n.p., n.d.

DESCRIPTORS: *Cancer, Cancer research, *Urinary tract, Industrial medicine, *Etiology, Nitrogen compound, Diagnosis, Dyes.

Thije, J. H. ten. and Ressang, A.
THE INCREASE IN PRIMARY LUNG CARCINOMA AMONG DOGS. [1962] 3p.
Order from K-H $3.75 K-H 5258 c

Trans. from Nederlands Tijdschrift voor Geneeskunde, 1956 [v. 100, no. 16].

DESCRIPTORS: *Cancer, *Lungs, Dogs.

Pharmacology and Toxicology

YUGOSLAV PHARMACEUTICAL DEVELOPMENTS. 10 Apr 61 [21]p. JPRS: 8076.
Order from OTS or SLA $2.60 62-19224

Trans. of Farmacevtski Vestnik (Yugoslavia) 1960, v. 11, no. 1/4, p. 9-12, 17-25, 33.

DESCRIPTORS: *Pharmacology, Scientific research, *Drugs, Economics, Production, Distribution, Botanical gardens.

Contents:
The progress of Yugoslav pharmacy in the postwar years (1945-60) by Dusan Gradisnik
Problems of the wholesale supply of drugs, by Fedor Pahor
The pharmaceutical service, by Vida Berkopec
The pharmaceutical botanical garden of Zagreb, by Janez Kromar.

Cihak, A.
PSYCHOTROPICALLY ACTIVE SUBSTANCES FROM MEXICAN FUNGI (Psychotropne Ucinne Latky Mexickych Hub) tr. by Vedral. 14 Sep 61, 7p. 1 ref. H 9902.
Order from OTS or SLA $1.10 62-25223

Trans. of Chemicke Listy (Czechoslovakia) 1961 [v. 55] no. 5, p. 536-541.

DESCRIPTORS: *Drugs, *Psychiatry, *Fungi, *Indoles, Chemical analysis, Ergot, Alkaloids, Phosphorus, Pharmacology, Tryptophan.

Falk, W., Hinrichs, R., and Köstenberger, R.
BALANCE STUDIES ON THE ELECTROLYTE EFFECT OF HYDROCHLOROTHIAZIDE IN CHILDREN: CONTRIBUTION ON THE MECHANISM OF ACTION OF CONTEBEN DIURESIS (Bilanzstudien zur Elektrolytwirkung von Hydrochlorothiazid bei Kindern: Beitrag zum Wirkungsmechanismus der Contebendiurese). [1962] [1]p. (2 figs. 20 refs. omitted).
Order from SLA $1.10 62-10737

Partial trans. (abstract) of Z[eit]schr[ift für] Kinderh-[eil] k[unde] (West Germany) 1960, v. 83, no. 5, p. 599-608.

DESCRIPTORS: *Electrolytes (Physiology), *Drugs, *Nephritis, Children, *Diuretics, Pharmacology.

All children with intact kidneys showed a negative Na balance after Esidrix K (Esidrix=hydrochlorothiazide). Conteben in experimental persons showed no uniform picture in regard to sodium retention. Water excretion was not essentially enhanced by Conteben. In a small child with nephrotic syndrome, balance studies were conducted with prolonged therapy with prednisolone and additional doses of Esidrix K. With the small dose of prednisolone of 0.8 mg. /Kg., Na was retained and K increased in greater quantity. Combined use of thiosemicarbazone and hydrochlorothiazide is recommended. Thiosemicarbazone was given in a dosage of 3 mg. /Kg., hydrochlorothiazide=Esidrix K 0.4 - 1 mg. /Kg. (Report quoted in its entirety)

Georges, G., Herold, M., and Gautier, E.
ACTION OF SOME "PSYCHOLEPTICS" ON THE COMPENSATORY ADRENAL HYPERTROPHY OF FEMALE RATS (Action de Quelques "Psycholeptiques" sur l'Hypertrophie Surrenalienne Compensatrice de la Rate). [Paper presented at the] French Congress of Anesthesiology (no. 11) Nancy, 18-21 May 61. [1962] [5]p. 5 refs.
Order from SLA $1.10 62-16906

Trans. of Agressologie (France) 1961, v. 2 [no. 6] p. 605-607.

DESCRIPTORS: *Drugs, Nervous system, Inhibition, *Tranquilizing drugs, *Adrenal glands, Secretion.

Gulbrandsen, Reidar.
POTENTIATION OF TOLBUTAMIDE BY PHENYLBUTAZONE (Okt Tolbutamid-Effekt ved Hjelp av Fenylbutazon)? [1962] [5]p. (foriegn text included) 3 refs.
Order from SLA $1.10 62-16016

Trans. of Norsk Laegeforening. Tidsskrift, 1959, v. 79 [no. 19] p. 1127-1128.

DESCRIPTORS: *Orinase, *Drugs, Pharmacology, Diabetes, *Blood sugar, *Butazolidines, Amides.

As a supplement to previous investigations having shown that phenybutazone enhances the action of certain drugs, some observations are reported indicating that it also enhances the effect of tolbutamide on the blood sugar. (Author)

Hermann, M. and Winkler, G.
SHORTENING OF THE RESTORATION PHASE OF THE ADRENAL CORTEX IN GUINEA PIGS AFTER PROLONGED PRETREATMENT WITH CORTISONE BY MEANS OF SIMULTANEOUS ADMINISTRATION OF METHANDROSTENOLONE (Abkurzungen der Restitutionphase der Nebennierenrinde beim Meerschweinchen nach Langfristiger Vorbehandlung mit Cortison durch Gleichzeitige Zufuhr von Methandrostenolon). [1962] [9]p. 21 refs.
Order from SLA $1.10 62-18180

Trans. of Arzneim[ittel]-Forsch[ung] (West Germany) 1962, v. 12 [no. 1] p. 82-84.

DESCRIPTORS: Drugs, *Adrenal glands, *Corticosteroids, Pharmacology, *Pathology, Inhibition, *Dianabol,

No reduction of the nuclear volume in the cells of the fasciculate zone of the cortex of the adrenals is observed. A spontaneous augmentation of the nuclear volumes higher than the values obtained after termination of the pretreatment are observed 5 days earlier in additional methandrostenolone treatment than in cortisone treatment only. Hemorrhagic necrosis in the cortex of the adrenals after intoxication with diphtheria toxin is observed on the 5th day after termination of pretreatment following additional treatment with methandrostenolone. In animals treated with cortisone only, this tissue lesion is observed only on the 8th day after termination of pretreatment. The excretion of 17-hydroxycorticoids does not correspond with this accelerated reaction of the cortex of the adrenals. The values remained subnormal during the time of observation. (Author)

Lecomte, J.
ACTION OF GUANETHIDINE ON THE GENERAL ANAPHYLACTIC REACTIONS OF RABBITS (Action de la Guanéthidine sur les Réactions Anaphylactiques Générales du Lapin). [1962] 11p. 8 refs.
Order from SLA $1.60 62-18177

Trans. of Allergie und Asthma (East Germany) 1961, v. 7, p. 271-278.

DESCRIPTORS: *Guanethidine, Sensitivity, *Drugs, Adrenal glands, *Anaphylaxis, Stimulation, Secretion, *Vasomotor drugs.

Pretreatment of sensitized rabbits with guanethidine (2 to 5 mg./Kg.) increases the reactivity of blood vessels to catecholamines. It modifies the immediate general anaphylactic reactions: a pressor response appears first, which is due to a direct stimulation of suprarenal glands. This is probably related to a release of bradykinin, by the antigenantibody reaction. Bradykinin increases the output of sympathetic amines from the adrenal medulla. (Author)

Lysanowicz, Zofia Czochra; Gorski, Michal; and Kedra, Mieczyslaw.
THE INFLUENCE OF NICOTINE AND CAFFEINE ON THE DEVELOPMENT OF ARTERIOSCLEROSIS IN RABBITS. [1962].
Order from K-H $31.25 K-H 10938 a

Trans. of [Uniwersytet Marii Curie-Sklodowskiej. Annales]. Sect[io] D: [Medicina] (Poland) 1959, v. 14, no. 20, p. 181-206.

DESCRIPTORS: *Nicotine, *Caffeine, *Arteriosclerosis, Rabbits, Pathology.

Mahrburg, Stanislaw.
ANATOMO-PATHOLOGICAL STUDIES OF LUNG TISSUE CHANGES IN MICE AFTER INHALATION OF TOBACCO SMOKE. [1962].
Order from K-H $16.25 K-H 10693 g

Trans. of [Uniwersytet Marii Curie-Sklodowskiej. Annales]. Sect[io] D: [Medicina] (Poland) 1958, v. 13, no. 4, p. 35-44.

DESCRIPTORS: *Smokes, Tobacco, *Lungs, Pathology, Mice.

Merz, K. W.
ON CHICHORIIN AND THE CONSTITUTION OF ESCULIN AND SCOPOLIN. [1962] 33p.
Order from K-H $41.25 K-H 11455 e

Trans. of Archiv [für] Pharm[azie] u[nd] Ber[ichte der] D[eu]tsch[en] Pharm[azeutischen] Ges[ellschaft] (Germany) 1932, v. 270, p. 476-493.

DESCRIPTORS: *Drugs, Pharmacology.

Novacek, Alois, Ulrich, Miroslav, and Stejskal, Frantisek.
METHOD OF PREPARING DEHYDROPREGNENOLONE ACETATE FROM STEROID SAPOGENINS. [1962] 4p.
Order from OTS or SLA $1.10 62-16486

Trans. of Czechoslavakian patent 95115, cl. 12 o, 25/05, appl. 9 Dec 58 (PV 6369-58) pat. valid from 9 Dec 58, pub. 15 May 60, disclosed 15 Oct 59.

DESCRIPTORS: *Drugs, *Synthesis, *Pregnandiols, Steroids, *Glycosides, Acetates.

A method is given for preparing dehydropregnenolone acetate from steroid sapogenins by conversion to the

corresponding pseudo derivatives in an acetic anhydride medium at increased temperature The method is characterized in that the conversion proceeds in the presence of anhydrous potassium acetate in an acetic anhydride medium at the boiling point of the reaction mixture, in a stream of nitrogen and at atmospheric pressure, whereupon the product, after oxidation with chromium oxide, is isolated by extraction with benzene, washing the benzene extract with an alkaline lye and concentrating the said extract, after which the distillation residue is converted to dehydropregnenolone acetate by splitting off the side chain at position 16 by the action of dry ammonia gas or by cation exchange in an inactive organic solvent, such as toluene, at the boiling point of the reaction mixture.

Portnov, A. A.
ALCOHOLISM: CONCLUSIONS. 9 Jan 63 [16]p.
JPRS: 17066.
Order from OTS or SLA $1.60 63-13828

Trans. of mono. Alkogolizm, Moscow, 1962, p. 196-209.

DESCRIPTORS: *Alcoholism, Pathology, Toxicity, Toxic tolerances, *Tolerances (Physiology), Liver, Nervous system, *Therapy.

Pyriki, C.
THE BEHAVIOR OF OXYNICOTINE IN THE SMOKING OF CIGARETTES. Feb 61, 19p.
Order from K-H $23.75 K-H 10573 d

Trans. of a Reprint of die Nahrung (West Germany) 1960, v. 4, no. 4, p. 310-322.

DESCRIPTORS: *Cigarettes, *Smokes, *Nicotine, Tobacco, Oxygen.

Rapela, C. E. and Houssay, B. A.
ACTION OF NICOTINE ON THE SECRETION OF ADRENALINE AND NORADRENALINE IN ADRENAL VENOUS BLOOD OF THE DOG. [1962] 7p.
Order from K-H $8.25 K-H 3036 g

Trans. of Soc[iedad] Arg[entina] de Biol[ogia, Buenos Aires. Rev[ista] 1952, v. 28, p. 219-224.

DESCRIPTORS: *Nicotine, Secretion, *Adrenal glands, *Veins, Blood, Dogs, Toxicity, *Epinephrine.

Scheidt, Walter.
COFFEE, SCHNAPPS, AND TOBACCO DRINKING. [1962] 17p.
Order from K-H $21.25 K-H 3058 b

Trans. of Medizinische Klinik (West Germany) 1954, v. 49, p. 399-401.

DESCRIPTORS: *Coffee, *Tobacco, *Beverages, *Alcohols.

Schmiedl, Hugo.
EXPERIMENTAL INVESTIGATIONS OF THE EFFECTS OF SMOKING TOBACCO ON THE VASCULAR SYSTEM. [1962] 52p.
Order from K-H $65.00 K-H 9500 b

Trans. of Frankf[urter] Z[eitschrift für] Path[ologie] (Germany) 1913, v. 13, p. 45-76.

DESCRIPTORS: *Cigarettes, *Smokes, Tobacco, Toxicity, *Cardiovascular system.

Schulze, K. and Scholz, E.
CONTRIBUTION TO THE INVESTIGATION OF MEDICINES. [1962] 10p.
Order from K-H $12.50 K-H 5564

Trans. of Deutsche Apotheker-Zeitung (Germany) 1938 [v. 53] 19 Oct, p. 1245.

DESCRIPTORS: Pharmacology, *Drugs, Medicine.

Sornet, R.
NATURAL MENTHOL AND SYNTHETIC MENTHOLS. [1962] 8p.
Order from K-H $10.00 K-H 9874 d

Trans. of Revue de Chimie Industrielle [et le Moniteur Scientifique de Quesneville] (France) 1927, no. 36, p. 51-58.

DESCRIPTORS: *Synthesis, Drugs, *Camphors.

Radiobiology

BULLETIN OF EXPERIMENTAL BIOLOGY AND MEDICINE, 1962 [VOL. 54] NO. 3: SELECTED ARTICLES. 10 Oct 62 [27]p. 30 refs. FTD-TT-62-692; AD-287 724.
Order from OTS or SLA $2.60 63-13210

Unedited rough draft trans. of #Byulleten' Eksperimental'noi Biologii i Meditsiny (USSR) 1962 [v. 53] no. 3, p. 34-38, 109-116.

DESCRIPTORS: *Biology, *Medicine, *Radiation effects, *Blood vessels, Pathology, *Cells (Biology), *Intestines, Physiology, *Sex glands, *Uterus, Radiation injuries.

Contents:
Restoration of certain indexes of the functional condition of cutaneous vessels in monkeys at remote postirradiation periods, by V. V. Yakolev

Histochemical changes in the enterochromaffin cells of the duodenum in acute radiation sickness, by N. M. Nemenova and others

Relationship between the localization of radiation injuries and the functional state of the organ, by N. V. Sokolova and T. I. Gorshenina.

PROBLEMS OF RADIOBIOLOGY, 1957, VOL. 2, tr. by Y. S. Halpern and others. 1962, 434p. refs. PL-480 HEW.
Order from OTS $4.50 61-31016

Trans. of Voprosy Radiobiologii (USSR) 1957, v. 2.

DESCRIPTORS: *Radiobiology, Biology, Ionization, X-rays, *Radiation effects, Animals, *Radioactive isotopes, Cobalt, Dosage, Parasites, Worms, Oxygen, *Vagus nerve, Radiation sickness, Conditioned reflex, *Hemorrhage, *Blood pressure, *Respiration, Absorption, *Tissues (Biology), Nerves, *Nucleoproteins, Brain, Liver, Spleen, *Phosphorylation, Cytochemistry, *Metabolism, *Burns, Blood, Leukocytes, *Gastrointestinal system, Deuterium, Spectrographic analysis, Phosphorus, Thyroid gland, Ovaries, Pituitary gland, *Endocrine glands, Testes, Morphology, Physiology, *Epithelium, Skin, Regeneration, *Immunology, Inhibition, *Amino acids, Thiols, Adrenal cortex, *Acetylcholine, Ascorbic acid, *Hormones, Vitamin B complex, Iron, Adenosine phosphate, Erythrocytes, Insulin, Epinephrine, Carbohydrates, Beta particles, *Radiation tolerance.

Contents:

Foreword
Radiochemical processes in the primary biological action of ionizing radiation, by L. A. Kachur
The theory of biological action of X-rays on the animal organism, by S. E. Manoilov
Effect of radiation dose rate of radioactive cobalt (Co^{60}) on the reaction of the organism during total irradiation, by G. S. Strelin and others
The importance of the dose rate of radioactive cobalt (Co^{60}) radiation on the biological reaction of the organism, by G. S. Strelin and N. K. Shmidt
Changes in sensitivity of gastroidea viridula and lumbriculus variegatus to the action of X-rays in an environment devoid of oxygen, by I. V. Shiffer
The effect of drugs which increase inhibitory processes on conditioned reflex activity of irradiated animals, by O. A. Bryukhanov
The vagal depressor reflex following radiation sickness complicated by hemorrhage, by V. F. Cherkasov
Certain pressor reflexes in radiation sickness complicated by hemorrhage, by V. F. Cherkasov
Effect of irradiation on interoceptive reflex control of blood pressure and respiration, by E. I. Komarov
The absorption properties of nerve tissue in animals irradiated with X-rays, by A. V. Lazovskaya
Some aspects of nucleoprotein metabolism in the brain following X-ray irradiation of animals, by I. N. Davydova
The effect of ionizing radiation on autolytic processes in the liver and spleen of rats, by B. M. Graevskaya
The condition of tissue respiration and coupled oxidative phosphorylation during combined action of injurious agents (fracture and total body X-ray irradiation) by L. V. Mytareva
Histochemical studies of iron content in certain internal organs in severe experimental radiation sickness, by L. V. Funshtein and E. I. Shcherban'
The state of nucleoprotein metabolism of the animal organism following a combination of experimental traumata (thermal burn and total body X-ray irradiation) by P. D. Demidova
Proteolysis during combined injury (trauma and X-ray irradiation) by Z. B. Tokarskaya
Change of blood composition in white rats after X-ray irradiation and loss of blood, by A. D. Pushnitsina
Changes in differential white cell count following administration of a "milk sample" to irradiated animals, by T. V. Tkacheva
Changes in reaction of white blood cells in response to stimulation of mechanoreceptors of the stomach in irradiated animals, by T. V. Tkacheva
Effect of ionizing radiation on digestive leukocytosis in animals, by E. I. Komarov
Determination of deuterium content and certain biological media by means of a mass spectrometer (MS-2M) by L. A. Kachur and others
Disturbance in the process of absorption of various substances from the gastrointestinal tract during radiation injury, by P. N. Kiselev and N. M. Okulov
Changes in the gastrointestinal tract in acute and subacute experimental radiation sickness (X-ray studies) by L. R. Protas and A. A. Danilin
Changes in arterial blood pressure and pulse rate following blood-letting in animals previously subjected to the combined effects of irradiation and hemorrhage, by V. F. Cherkasov
Effect of radioactive phosphorus on the cardiovascular system (Experimental study) by E. I. Vasil'eva
Some characteristics of the course of radiation sickness complicated by hemorrhage, by V. F. Cherkasov
Reaction of the thyroid gland, ovaries and anterior hypophyseal lobe to a single whole body and to chronic irradiation with radioactive cobalt (Co^{60}) from an external source, by L. A. Kashchenko
Prevention of radioactive iodine uptake by the thyroid gland following administration of nonradioactive iodine, by L. A. Kashchenko
Experiments with autoradiography of endocrine organs in irradiated animals, by G. S. Lykova and L. V. Funshtein
The reaction of testes of white mice to single total body irradiation with varying doses of radioactive cobalt (Co^{60}) by G. M. Ronichevskaya
The morphological and functional condition of the thyroid gland in radiation sickness in white mice, by E. A. Lyalin
The biological effect of small X-ray doses on the epithelium of the rat cornea, by I. B. Bychkovskaya
The proliferative capacity of the epidermis after local irradiation with radioactive cobalt (Co^{60}) by L. V. Funshtein
Stimulation of the growth of fur in rabbits following single local X-ray irradiation of the skin, by U. G. Zil'berg
Effect of penetrating radiation on the formation of a antibodies, by P. A. Buzini
Change in phagocytic activity of leukocytes under the influence of various X-ray doses, by P. A. Buzini
Comparison of effect of radioactive cobalt and X-rays on formation of antibodies and on the healing of inflammatory foci after local irradiation, by P. A. Buzini
Some immunological mechanisms of self-protection of the organism against the effect of ionizing radiation, by P. N. Kiselev and V. A. Semina
The course and treatment of experimental pneumonia in radiation sickness, by P. N. Kiselev and others
Characteristics of specific treatment of gas gangrene (B. perfringens) in acute radiation sickness, by E. V. Karpova
Prophylaxis and therapy of acute radiation sickness with use of vitreous body, by Z. T. Belugina
Synthesis of new amino-and mercapto-compounds and their experimental testing in radiation sickness, by L. F. Semenov and others

Experimental data on the prophylaxis and therapy of radiation sickness, by L. F. Semenov and E. A. Prokudina

Condition of adrenal cortex following radiation sickness prophylaxis with cystamine and acetylcholine together with adrenalin, by L. V. Bozhenko

Effect of vitamin C insufficiency and administration of large doses of ascorbic acid on the survival of guinea pigs irradiated with varying doses, by A. I. Strashinin

Hormone therapy in hypophyseal damage brought about by radioactive iodine (I^{131}) administration, by L. A. Kashchenko

Experiments on prophylaxis and treatment of radiation sickness with iron-containing substances in combination with vitamin B_{12}, by S. E. Manoilov

The use of certain biological preparations (campolon, vitamin B_1 and ATP) as prophylactic and therapeutic measures against radiation sickness, by S. E. Manoilov and others

Prophylactic effect of certain chemical preparations on erythropoiesis in animals during radiation sickness, by G. V. Voskoboinikov

State of carbohydrate metabolism in prophylaxis of radiation sickness with certain substances (insulin, adrenalin, vitamin B_1, ATP, and others) by R. Ya. Keilina

Experimental therapy of local skin damage caused by beta-radiation using an extract of naphthalan oil, by L. V. Funshtein

Certain problems in the theory of gamma-ray therapy machines, by V. A. Petrov

Biological and therapeutic applications of complex gamma sources, by N. M. Palladieva

Determination of the concentration of alpha-radioactive substances and the dose rate at equilibrium in tissues on the basis of measurement of activity in histological sections, by A. M. Kononenko

Fedorov, Yu. A.
INCREASED SUSCEPTIBILITY TO DENTAL CARIES INDUCED BY IONIZING RADIATION. 23 Feb 62 [12]p. 18 refs. FTD-TT-62-183.
Order from OTS or SLA $1.60 62-24944

Unedited rough draft trans. of Akademiya Nauk SSSR. Doklady, 1961, v. 140, no. 5, p. 1195-1198.

DESCRIPTORS: *Dental caries, Laboratory animals, Rats, *X-rays, *Radiation effects, Radiation sickness, *Teeth, *Diseases, Countermeasures, Phosphorus, Calcium, Carbohydrates, Metabolism, *Radiobiology.

A study was made of effect of total-body fractional X-irradiation on the susceptibility of rats to dental caries, and also the effect of the combined action of total-body X-irradiation and a carbohydrate diet on solid dental tissues of experimental animals. The condition of phosphorus-calcium metabolism in the irradiated animals was studied by means of P^{32}. It was shown that as a result of total-body fractional X-irradiation, chronic radiation sickness in experimental animals was accompanied by numerous dental caries. The experimental results indicate that the disorder of phosphorus-carbohydrate metabolism, the cessation of enzymic intake of phosphorus-calcium compounds to the dental tissues from the saliva, and the degenerative alterations in the pulpa must be considered the main factors inducing carious processes in teeth of irradiated animals. Organic preparations of phosphorus and calcium can be used successfully as an anticarious prophylaxis under ordinary conditions and in radiation therapy of the oral cavity.

Mirutenko, V. I. and Gorodetska, S. F.
INVESTIGATING LOCAL THERMAL EFFECT OF ELECTROMAGNETIC 3 CM WAVES ON ANIMALS [AND] MORPHOLOGICAL CHANGES IN INTERNAL ORGANS WHEN THE ORGANISM IS EXPOSED TO THE EFFECT OF CENTIMETER WAVES. 14 Nov 62 [22]p. 19 refs. FTD-TT-62-1361.
Order from OTS or SLA $2.60 63-13878

Unedited rough draft trans. of Fiziologichnyi Zhurnal (USSR) 1962, v. 8, no. 3, p. 382-396.

DESCRIPTORS: Electromagnetic waves, *Microwaves, *Radiation injuries, *Heat production (Biology), Animals, *Dosimeters, Waveguides, Tissues (Biology), *Histology, Morphology, *Sex glands, Heat treatment, Blood disorders, Deficiency diseases, Necrosis.

We have investigated the thermal effect during the application of electromagnetic waves in a pulsed condition depending upon the field intensity and duration of the effect on the animals, by the method of waveguide dosimeter with visible amount of absorbed energy. (Mirutenko) Irradiation of animals with 3-cm radio waves cannot be considered as non-toxic for the organism. In the early stages after exposure to radio waves highly prominent hemodynamic disintegrations-phenomena of hyperemia and hemorrhages develop in practically all internal organs. In addition to hyperemia, in the internal organs during the entire period of investigation can be observed phenomena of albumina dystrophy, which in some organs (in heart, liver) lead to micronecrosis. Ovaries suffer much greater damage than testicles: up to the twentieth day after exposure we could not find restorations of follicular cells. When overheating with convectional heat is applied changes in internal organs are less prominent. It is only possible to establish earlier originations and rapid disappearances of hemodynamic disintegrations. Under the effect of convectional heat the sexual organs or mice experience no acute changes. (Gorodetska)

Novak, L., Vatsek, A., and Pospishil, M.
ROLE OF THE NERVOUS SYSTEM IN CHANGES OF THE "METABOLIC REACTIVITY" OF THE IRRADIATED ORGANISM (Rol' Nervnoi Sistemy v Izmeniyakh "Metabolicheskoi Reaktivnosti" Obluchennogo Organizma). [1962] [14]p. 22 refs.
Order from OTS or SLA $1.60 AEC-tr-5190

Trans. of Symposium on the Effects of Ionizing Radiation on the Nervous System, Vienna, 5-9 June 61. Proceedings [Vienna] 1962, p. 449-459.

DESCRIPTORS: *Nervous system, *Metabolism, *Radiation sickness, *Adaptation (Physiology), Gas analysis.

The method for continuous observation of changes in the reactivity of the intact organism, based on continuous measurements of gas exchange in experimental animals, was elaborated. Observations of the functional significance of the nervous system resulted in the following: (a) metabolic reactivity in experimental animals depends on

the functional integrity of the nervous system; (b) the reactive (adaptive) component of metabolism can be very easily observed by the method used and facilitates observation of the changes developing in the irradiated organism. The possible use of the method described for differentiation of individual radiosensitivity in irradiated animals is the point of discussion. (Author)

Romantsev, E.
PROTECTION AGAINST RADIATION. 7 Jan 63 [33]p. 15 refs. JPRS: 16995.
Order from OTS or SLA $3.60 63-13856

Trans. of Bol'shaya Meditsinskaya Entsiklopediya (USSR) 1962, v. 26, p. 1150-1168.

DESCRIPTORS: *Radiation effects, Protective clothing, *Protective coverings, Radiobiology, Radiation monitors, Radiation tolerance, Radiological dosage, *Radioprotective drugs, Vitamins, Hormones, Antioxidants.

Shakhov, A. A.
THE EFFECT OF COSMIC RADIATION ON PLANT ACTIVITY. 11 Oct 62 [21]p. 17 refs. FTD-TT-62-771: AD-287 707.
Order from OTS or SLA $2.60 63-13183

Unedited rough draft trans. of Zhurnal Obshchei Biologii (USSR) 1962, v. 23, no. 2, p. 81-89.

DESCRIPTORS: *Cosmic rays, *Radiation effect, *Plants, *Space biology, Radiobiology, Ultraviolet radiation, Adaptation (Physiology).

By combining natural radiation with radiation from artificial sources of ultraviolet, radiation conditions close to those of space can be created in Eastern Pamir. The phenomenon of photoadaptation through the generations and also photoreactivation induced by visible light is distinctly expressed in plants found under such "quasi-cosmic" radiation conditions. These phenomena can be considerable space-biological importance since plants acquire the ability to withstand, without dying, considerable doses of UV-radiation with high-energy quanta. Here their activity and photosynthesis proceed normally or in certain species are slightly depressed. Under the effect of UV-irradiation, plants develop the ability to utilize more fully the energy of visible light, especially in the region of green and near-infrared rays. UV-irradiation changes the submicroscopic structure of the chloroplasts and also the lipid metabolism taking place in them. (Author)

Toulet, M. J. and Tabernat, J.
CONTRIBUTION TO THE STUDY OF EXTERNAL DECONTAMINATION PROCEDURE: EXPERIMENTATION ON A NEW PRODUCT IN THE CASE OF RADIOACTIVE CONTAMINATION OF TEGUMENTS, PT. I-III. [1962] 14p.
Order from OTS or SLA $1.60 AEC-tr-4552

Trans. of Commissariat á l'Énergie Atomique, Paris (France). Rapport-1289 (reprint from Archives des Maladies Professionnelles [de Médecine du Travail et de Securité Sociale] (France) 1959, v. 20, no. 3, p. 272-282.

DESCRIPTORS: *Radiological contamination, *Decontamination, *Skin, *Radioprotective drugs, Drugs.

Vasilenko, G. G. and Nogachevskyi, Y. Y.
THE EFFECT OF BIOCENSIS OF INTESTINAL MICRO FLORA ON THE DEVELOPMENT OF RADIATION SICKNESS. 17 Jan 63 [8]p. 5 refs. JPRS: 17170.
Order from OTS or SLA $1.10 63-15113

Trans. of Mikrobiologichnyi Zhurnal (USSR) 1962, v. 24, no. 5, p. 35-38.

DESCRIPTORS: *Ecology, *Microorganisms, Leukopenia, *Gastrointestinal system, Infections, *Radiation sickness, Radiation effects.

Latent infection aggravates the course of radiation sickness: provocation of it is one of the major causes of generalized autoinfection and death of irradiated mice. Under identical conditions, in animals without latent infection the aggressiveness of the intestinal microbes and the leukopenia are less pronounced. Autoinfection in cases of radiation sickness, and the duration and degree of leukopenia depend, to a considerable extent, on the state of the biocenosis of the normal intestinal microflora. (Author)

Zoology

PARASITES OF FRESHWATER FISH AND THE BIOLOGICAL BASIS FOR THEIR CONTROL (Parazity Presnovodnykh Ryb i Biologicheskie Osnovy Bor'by s Nimi) tr. by L. Kochva. 1962, 236p. 570 refs. PL-480 Int.
Order from OTS $2.50 61-31056

Trans. of [Vsesoyuznyi] Nauchno-Issledovatel'skii Institut Ozernogo i Rechnogo Rybnogo Khozyaistva. Izvestiya (USSR) 1959, v. 49 [225p.]

DESCRIPTORS: *Parasitology, Aquatic animals, Parasites, Control, *Fishes, *Ecology, Reproduction, Growth, Physiology, Tissues (Biology), Immunology, *Carp, *Sturgeon, Fisheries, Protozoa, Platyhelminths, Nematodes, Infections.

Contents:
The ecology of parasites of freshwater fish, by O. N. Bauer
On the infection of the Volga sturgeon by polypodium hydriforme Ussov (coelenterata) by E. V. Raikova
Ergasilosis of the "peled" whitefish (coregonus peled) in the Pskov region, by V. N. Abrosov and O. N. Bauer
Carp coccidiosis on the Valdai fish farm, by V. E. Zaika and E. M. Kheisin
Yu. K. Petrushevskii, obituary notice
Publications on parasitology and applied ichthyology by Yu. K. Petrushevskii.

Chudova, Z. I.
THE ROLE OF VITAMINS A AND B_1 IN REARING YOUNG SALMON: CONCLUSIONS (Rol Vitaminov A i B_1 v Vyrashchchivanii Molodi Lososya). 1962, 2p. FRBC Trans. Series no. 396.
Order from NRCC NRCC C-4170

Partial trans. (p. 427-429) of V[sesoyuznyi] N[auchno]-I[ssledovatel'skii] Institut [Morskogo] Rybnogo Khozyasistva i O[keanografii. Latviiskoe [Otdelenie]. Trudy (USSR) 1961, v. 3, p. 421-429.

DESCRIPTORS: *Salmon, Growth, Vitamin A, *Vitamins, Vitamin B complex, Nutrition, Liver, Pathology, *Deficiency diseases.

Gutsevich, A. V.
BLOODSUCKING MIDGES (DIPTERA, HELEIDAE) OF THE FAUNA OF THE USSR [Krovososushchie Mokretsy (Diptera, Heleidae) Faune SSSR] tr. by R. Ericson. Nov 60 [79]p. (figs omitted).
Order from OTS or SLA $7.60 62-15637

Trans. of [Opredeliteli po Faune SSSR] 1960, v. 72, p. 3-130.

DESCRIPTORS: *Insects, *Diptera, *Midges, *Disease vectors, *Pest control, Anatomy, Classification, Morphology.

Kairov, E. A. and Chudova, Z. I.
THE PASSAGE OF MIGRATING ATLANTIC SALMON AND VIMBA SPAWNERS THROUGH THE FISHWAY OF THE KEGUM HYDRO-ELECTRIC STATION: CONCLUSIONS (Propusk Migriruyushchikh Proizvoditelei Lososya i Syrti Cherez Rybokhod Kegumskoi GES). 1962 [2]p. FRBC Trans. Series no. 399.
Order from NRCC NRCC C-4174

Partial trans. (p. 493) of V[sesoyuznyi] N[auchno]-I[ssledovatel'skii] Institut [Morskogo] Rybnogo Khozyaistva [i] O[keanografii. Latviiskoe [Otdelenie]. Trudy (USSR) 1961, v. 3, p. 479-493.

DESCRIPTORS: *Salmon, *Fisheries, Reproduction, Fishes, *Hydroelectric power systems, Water, Temperature.

Malikova, E. M., Apine, S. O., and Shaldaeva, R. E.
THE USE OF VITAMINS AS A PROPHYLACTIC AND MEDICINAL MEASURE FOR DISEASES OF YOUNG SALMON IN HATCHERIES: CONCLUSIONS (Ispolzovanie Vitaminov v Kachestve Profilakticheskikh i Lechebnykh Sredstv pri Zabolevaniyakh Molodi Lososya na Rybovonykh Zavodakh). 1962 [2]p. FRBC Trans. Series no. 398.
Order from NRCC NRCC C-4180

Partial trans. (p. 452) of V[sesoyuznyi] N[auchno]-I[ssledovatel'skii] Institut [Morskogo] Rybnogo Khozyaistva i O[keanografii]. Latviiskoe [Otdelenie]. Trudy (USSR) 1961, v. 3, p. 445-452.

DESCRIPTORS: *Salmon, Fish, *Fisheries, *Disease, Therapy, Inhibition, Vitamins, Lice, Protozoa, Liver.

Malikova, E. M. and Kotova, N. I.
THE VALUE OF ANTIBIOTICS IN ARTIFICIAL REARING OF YOUNG SALMON: CONCLUSIONS (Znachenie Antibiotikov pri Iskusstvennom Vyrashchivanii Molodi Lososya). 1962 [2]p. FRBC Trans-397.
Order from NRCC NRCC C-4181

Partial trans. (p. 442) of V[sesoyuznyi] N[auchno]-I[ssledovatel'skii] Institut [Morskogo] Rybnogo Khozyaistva [i] O[keanografii]. Latviiskoe [Otdelenie]. Trudy (USSR) 1961, v. 3, p. 431-443.

DESCRIPTORS: *Antibiotics, *Salmon, Fishes, *Fisheries, Reproduction, Growth, Biomycin, Penicillin.

Pinskii, F. Ya.
THE DAILY RHYTHM OF FEEDING AMONG FINGERLING SALMON (SALMO SALAR L.): CONCLUSIONS (O Sutochnom Ritme Pitamiya Segoletok Lososya (Salmo Salar L.). 1962 [2]p. FRBC Trans. Series no. 400.
Order from NRCC NRCC C-4185

Partial trans. (p. 502) of V[sesoyuznyi] N[auchno]-I[ssledovatel'skii] Institut [Morskogo] Rybnogo Khozyaistva i O[keanografii. Latviiskoe [Otdelenie]. Trudy (USSR) 1961, v. 3, p. 495-503.

DESCRIPTORS: Rhythm, *Feeding, *Salmon, Fish, Fisheries, Food, Growth.

Tomilin, A. G.
BIONICS AND CETACEANS. 10 Jan 63 [7]p. (figs. omitted). JPRS: 17079.
Order from OTS or SLA $1.10 63-13833

Trans. of Priroda (USSR) 1962 [v. 51] no. 10, p. 101-103.

DESCRIPTORS: *Aquatic animals, Mammals, *Cetacea, *Bionics, *Underwater sound signals, Hearing, *Skin, Fluid dynamics, *Hydrodynamic configurations, Ship hulls.

A brief discussion of sound signaling by cetaceans and its possible use in the capture of these animals and in underwater sound transmission is followed by considerations of the relationship of the hydrophobic and antiturbulent properties of the skin surface to swimming speed. It is suggested that some of the features of cetacean streamlining (E. G., the pad of fat on the head) could be incorporated into ship hull design.

CHEMISTRY

ABSTRACTS FROM EAST EUROPEAN SCIENTIFIC AND TECHNICAL JOURNALS NO. 51 (CHEMISTRY SERIES). 15 Jan 63 [17]p. JPRS: 17149.
Order from OTS or SLA $1.60 63-15089

Consists of abstracts of articles from the scientific and technical journals of Czechoslovakia, East Germany, and Hungary.

DESCRIPTORS: *Abstracts, Chemistry, *Biochemistry, Photochemistry, *Chemical engineering, *Physical chemistry, Catalysts, *Organic substances, *Radiochemistry, Geochemistry, Radiological contamination, *Spectroscopy, Electrochemistry, *Czechoslovakia, *East Germany, *Hungary.

[BULLETIN OF THE ACADEMY OF SCIENCES OF THE USSR. DIVISION OF CHEMICAL SCIENCE] 1943, NO. 4: [TABLE OF CONTENTS AND SELECTED ABSTRACTS IN THE FIELD OF PETROLEUM LITERATURE]. [1962] 5p. 7 refs.
Order from OTS or SLA $1.10 62-16786

Abstract trans. of Akademiya Nauk SSSR. Otdelenie Khimicheskikh Nauk. Izvestiya, 1943, no. 4, p. 286-294, 296-304, 312-313, 317-320.

DESCRIPTORS: *Abstracts, *Petroleum, *Acetylenes, *Grignard reagents, *Metalorganic compounds, Mercury compounds, *Magnesium compounds, *Lead alloys, *Bromides, Scientific organizations.

Contents:
Acetylene derivatives. XXXIV. Interaction of Grignard reagents with β-methoxyethyl β, β-dimethylvinyl ketone, by I. N. Nazarov and L. N. Terekhova
Organomercury compounds. XX. Heterocyclic products of addition of salts of mercury to straight chain diolefins, by A. N. Nesmeyanov and I. F. Lutsenko
Chemical stability of magnesium-lead alloys in sulfuric acid, by V. E. Vainshtein and E. E. Vainshtein
Organomagnesium compounds. III. o-Oxyphenylmagnesium bromide and synthesis with the aid of this compound, by A. N. Nesmeyanov and K. A. Pecherskaya
May session of the Department of Chemistry, Academy of Sciences U.S.S.R.

[BULLETIN OF THE ACADEMY OF SCIENCE OF THE USSR. DIVISION OF CHEMICAL SCIENCE] 1944, NO. 5: [TABLE OF CONTENTS AND SELECTED ABSTRACTS IN THE FIELD OF PETROLEUM LITERATURE]. [1962] 7p. 30 refs.
Order from OTS or SLA $1.10 62-14137

Abstract trans. of Akademiya Nauk SSSR. Otdelenie Khimicheskikh Nauk. Izvestiya, 1944, no. 5, p. 325-335, 337-347, 359-363.

DESCRIPTORS: *Abstracts, *Petroleum, *Films, Aluminum, *Cyclopentanes, Acetylenes, *Synethesis, *Bromination.

Contents:
Mechanism of chromate filling of anodic oxide films on aluminum, by N. D. Tomashov and M. N. Tvukina
Contact conversions in the series of phenylcyclopentane, by Ya. I. Denisenko
Acetylene Derivatives. XL. Hydrogenation of secondary vinylethynylcarbinols, by I. N. Nazarov and L. B. Fisher
Synthesis of brominated phenylethylcyclopentane (phenylcyclopentylethane) derivatives, by Ya. I. Denisenko and I. Ya. Guretskii
Synthesis of 2-methyl-1-butylcyclopentane, by Ya. I. Denisenko and A. D. Frolova.

[BULLETIN OF THE ACADEMY OF SCIENCES OF THE USSR. DIVISION OF CHEMICAL SCIENCE] 1944, NO. 6: [TABLE OF CONTENTS AND SELECTED ABSTRACTS IN THE FIELD OF PETROLEUM LITERATURE]. [1962] 5p. 2 refs.
Order from OTS or SLA $1.10 62-14136

Abstract trans. of Akademiya Nauk SSSR. Otdelenie Khimicheskikh Nauk. Izvestiya, 1944, no. 6, p. 390-395, ##432-439, 460-46
##A complete trans. is available in Dutch from OTS or ETC $1.85 as 61-17942, MTWL-328, 15p.

DESCRIPTORS: *Abstracts, *Petroleum, *Films, Iron, *Condensation reactions, Polymers.

Contents:
Kinetics of formation of an oxide passivating film on iron, by A. A. Kochetkov
##Research on polycondensation. IV. Viscosity of polyamide solutions, by S. R. Rafikov and V. V. Korshak
In the department of chemical sciences.

[BULLETIN OF THE ACADEMY OF SCIENCES OF THE USSR. DIVISION OF CHEMICAL SCIENCE] 1945, NO. 1: [TABLE OF CONTENTS AND SELECTED ABSTRACTS IN THE FIELD OF PETROLEUM LITERATURE]. [1962] 4p.
Order from OTS or SLA $1.10 62-14135

Abstract trans. of Akademiya Nauk SSSR. Otdelenie Khimicheskikh Nauk. Izvestiya, 1945, no. 1, p. 14-28, 80-84.

DESCRIPTORS: *Abstracts, *Petroleum, *Adsorption, Statistical analysis, *Velocity.

Contents:
Statistical theory of velocities of activated adsorption on non-uniform surfaces, by S. Z. Roginskii
News items.

[BULLETIN OF THE ACADEMY OF SCIENCES OF THE USSR. DIVISION OF CHEMICAL SCIENCES] 1945, NO. 2: [TABLE OF CONTENTS AND SELECTED ABSTRACTS IN THE FIELD OF PETROLEUM LITERATURE]. [1962] 8p. 11 refs.
Order from OTS or SLA $1.10 62-14134

Abstract trans of Akademiya Nauk SSSR. Otdelenie Khimicheskikh Nauk. Izvestiya, 1945, no. 2, p. 104-112, 120-126, 128-136, 146-161, 173-176.

DESCRIPTORS: Chemistry, *Abstracts, *Petroleum, *Iron, Nitriles, *Adipic acids, *Metalorganic compounds, Ethylenes, *Mercury compounds, Vinyl chlorides, Synthesis, *Acetylenes, Halogens, *Substitution reactions, Conferences.

Contents:
Classification of the solubility of elements in iron, by I. I. Kornilov
Preparation of dinitrile of adipic acid, by V. M. Zoroastrova and others
Organomercury compounds. XXVII. Interaction of olefins with salts of mercury in amine solvents, by

R. Kh. Freidlina and N. S. Kochetkova
Organomercury compounds. XXIX. Cis-β-chlorovinyl mercurochloride, by A. N. Nesmeyanov and A. E. Borisov
Organomercury compounds. XXX. Synthesis of mercury derivatives of acetylene C_2H_2. HgClX, by A. N. Nesmeyanov and R. Kh. Freidlina
Mechanism of vapor phase catalytic substitution of a halogen attached to an aromatic ring by a hydroxyl, by L. Kh. Freidlina and others
November session of the department of chemical sciences

[BULLETIN OF THE ACADEMY OF SCIENCES OF THE USSR. DIVISION OF CHEMICAL SCIENCE] 1945, NO. 5: [TABLE OF CONTENTS AND SELECTED ABSTRACTS IN THE FIELD OF PETROLEUM LITERATURE] [1962] 6p. 14 refs.
Order from OTS or SLA $1.10 62-14145

Abstract trans. of Akademiya Nauk SSSR. Otdelenie Khimicheskikh Nauk. Izvestiya, 1945, no. 5, p. 456-462, 464-468, 480-484, 504-521.
##A complete trans. of p. 480-485 is available in Dutch from OTS or ETC $1.55 as 61-17943, MTWL-329, 10p.

DESCRIPTORS: *Abstracts, *Petroleum, Catalysis, Alcohols, Heat of activation, Condensation reactions, Amides, Acetylenes, Aniline, Crystal structures.

Contents:
Distribution of active centers on a mixed catalyst. I. Catalysis of isopropyl alcohol over alumina-zinc oxide, by A. A. Balandin and V. E. Vasserberg
Energy of activation of monomolecular catalytic reactions and the change of volume under flow conditions, by A. Kh. Bork and A. A. Balandin
##Research on polycondensation. V. Determination of the terminal groups of polyamides, by V. A. Zamyatina and V. V. Korshak
Acetylene derivatives. XLI. Addition of analine to β, β-dimethyldivinyl ketone, by I. N. Nazarov and A. Kh. Khomenko
The part played by primary crystal formations in heterogeneous catalysis, by A. M. Rubinshtein and N. A. Pribytkova.

[BULLETIN OF THE ACADEMY OF SCIENCES OF THE USSR. DIVISION OF CHEMICAL SCIENCE] 1945, NO. 6: [TABLE OF CONTENTS AND SELECTED ABSTRACTS IN THE FIELD OF PETROLEUM LITERATURE]. [1962] 7p. 11 refs.
Order from OTS or SLA $1.10 62-14146

Abstract trans. of Akademiya Nauk SSSR. Otdelenie Khimicheskikh Nauk. Izvestiya, 1945, no. 6, p. 543-555, ##609-616, 627-637, 669-671.
##A complete trans. of p. 609-616 is available from ATS $9.20 as ATS-84K26R [1958] 8p.

DESCRIPTORS: *Abstracts, *Petroleum, *Condensation reactions, *Hydrocarbons, Amines (Misc.), *Polycyclic compounds, Acetylenes, *Molecular isomerism, *Alcohols, *Ceramic materials.

Contents:
Biradical state of hydrocarbons, by M. E. D'yatkina and Ya. K. Syrkin
##Research on polycondensation. VI. Acidolysis and aminolysis of polyamides, by V. V. Korshak and V. A. Zamyatina
Synthesis of polycyclic compounds. IX. Interaction of stable free radicals with polynuclear aromatic hydrocarbons: Addition of triphenylmethyl to 9, 10-dimethylanthracene, by B. M. Mikhailov
Acetylene derivatives. XLII. Rearrangement of a 1, 3-diene system: Reversible isomerization of 1, 3-diene alcohols with shift of the hydroxyl into ω position, by I. N. Nazarov and L. B. Fisher
Fusibility diagram of a triple system, by I. Ya. Soldau and N. A. Zhirnova.

[BULLETIN OF THE ACADEMY OF SCIENCES OF THE USSR. DIVISION OF TECHNICAL SCIENCE] 1942, NO. 5/6: [TABLE OF CONTENTS AND SELECTED ABSTRACTS ON THE FIELD OF PETROLEUM LITERATURE]. [1962] 4p.
Order from OTS or SLA $1.10 62-14619

Abstract trans. of Akademiya Nauk SSSR. Otdelenie Tekhnicheskikh Nauk. Izvestiya, 1942, no. 5/6, p. 17-28, 48-57, 70-76.

DESCRIPTORS: *Abstracts, *Petroleum, Sorption, *Coal, *Heat transfer, *Gas flow.

Contents:
Sorption ability and colloidal structure of coals, by B. A. Onusaitis
Heat exchange by radiation in the absorbing layer, by A. S. Nevskii
Time period required for establishment of a stationary curve of pressure under condition of regulation of the consumption of gas in a gas pipeline, by I. A. Charnyi.

[BULLETIN OF THE ACADEMY OF SCIENCES OF THE USSR. DIVISION OF TECHNICAL SCIENCE] 1942, NO. 7/8: [TABLE OF CONTENTS AND SELECTED ABSTRACTS IN THE FIELD OF PETROLEUM LITERATURE]. [1962] 3p. 3 refs.
Order from OTS or SLA $1.10 62-14620

Abstract trans. of Akademiya Nauk SSSR. Otdelenie Tekhnicheskikh Nauk. Izvestiya, 1942, no. 7/8, p. 99-115.

DESCRIPTORS: *Petroleum, *Abstracts, *Oxidation, *Peat, Permanganates, *Coal.

Contents:
Research on sapropelic coals. I. Oxidation of balkhashite, by O. I. Egorova
Application of the method of permanganate numbers to determination of the extent of oxidation of coal, by O. I. Egorova.

[BULLETIN OF THE ACADEMY OF SCIENCES OF THE USSR. DIVISION OF TECHNICAL SCIENCE] 1942, NO. 9: [TABLE OF CONTENTS AND SELECTED ABSTRACTS IN THE FIELD OF PETROLEUM LITERATURE]. [1962] 5p. 4 refs.
Order from OTS or SLA $1.10 62-14621

Abstract trans. of Akademiya Nauk SSSR. Otdelenie Tekhnicheskikh Nauk. Izvestiya, 1942, no. 9, p. 17-27, 46-53.

DESCRIPTORS: *Abstracts, *Petroleum, Coal, Classification, *Oils, *Gasoline, *Distillation.

Contents:
A study of petrographic types of coals from the Prokof'ev-Kiselev field in Kuzbass. II. Employment of the method of permanganate numbers for classification of coals, by O. I. Egorova and V. L. Surkova
Comparative study of individual oils of U.S.S.R. IV. Gasoline-ligroin fractions of oils from Vereisk deposits in the Molotov (Permian) Prikama region, by G. D. Gal'pern.

[BULLETIN OF THE ACADEMY OF SCIENCES OF THE USSR. DIVISION OF TECHNICAL SCIENCE] 1943, NO. 8: [TABLE OF CONTENTS AND SELECTED ABSTRACTS IN THE FIELD OF PETROLEUM LITERATURE]. [1962] 3p. 3 refs.
Order from OTS or SLA $1.10 62-16797

Abstract trans. of Akademiya Nauk SSSR. Otdelenie Tekhnicheskikh Nauk. Izvestiya, 1943, no. 8, p. 26-49.

DESCRIPTORS: *Abstracts, *Petroleum, Industry, *Gases, Composition, *Coal, Organic materials, *Anhydrides.

Contents:
Changeability of the composition of gases in southern Ishimbai, by G. D. Gal'pern
Interaction of organic substance of coal with benzoic anhydride, by V. I. Zabavin.

[BULLETIN OF THE ACADEMY OF SCIENCES OF THE USSR. DIVISION OF TECHNICAL SCIENCE] 1943, NO. 9/10: [TABLE OF CONTENTS AND SELECTED ABSTRACTS IN THE FIELD OF PETROLEUM LITERATURE]. [1962] 4p. 1 ref.
Order from OTS or SLA $1.10 62-16798

Abstract trans. of Akademiya Nauk SSSR. Otdelenie Tekhnicheskikh Nauk. Izvestiya, 1943, no. 9, p. 3-20, 32-38 and ##57-67.
##A complete trans. is available from OTS or SLA $1.10 as 61-18350 [1961] 10p.

DESCRIPTORS: *Abstracts, *Petroleum, *Aluminum alloys, Silicon, *Chromium, *Electroplating, Oxidation, *Oils.

Contents:
Zinc-containing silumins, by A. A. Bochvar and others
Carbidization of electrolytic deposits of chromium, by V. I. Arkhanov and S. A. Nemnonov
###Experiment of oxidation of oils, resins and asphaltenes of Permian oil and problems of origin of asphalty resinous substances, by V. I. Zabavin.

[BULLETIN OF THE ACADEMY OF SCIENCES OF THE USSR. DIVISION OF TECHNICAL SCIENCE] 1943, NO. 11/12: [TABLE OF CONTENTS AND SELECTED ABSTRACTS IN THE FIELD OF PETROLEUM LITERATURE]. [1962] 6p. 6 refs.
Order from OTS or SLA $1.10 62-16799

Abstract trans. of Akademiya Nauk SSSR. Otdelenie Tekhnicheskikh Nauk. Izvestiya, 1943, no. 11/12, p. 3-49, 61-70, 78-85.
##Complete translations of p. 3-14 and 37-49 are available from OTS or SLA $1.60 ea. as 61-16945 [1961] 12p. and 61-18153 [1961] 12p.

DESCRIPTORS: *Abstracts, *Petroleum, *Hydrocarbons, Decomposition, *Petroleum, *Gas generating systems, Fluid flow, Gas flow, Heat exchangers, *Gas bearings, *Zinc compounds, *Aluminum alloys, *Iron alloys, Castings, Copper, Magnesium.

Contents:
##Materials on the chemistry of oxidizing cracking of hydrocarbons in the vapor phase, II, by S. S. Nametkin and L. M. Rozenberg
A method of evaluation of commercial resources of oil fields, by I. A. Charnyi
Methods of intensification of the work of industrial gas generators, by V. S. Al'tshuler
##Investigation of the hydraulic resistance in movement of gas-liquid media in horizontal tubes, by S. I. Kosterin
Gas bearing in Kuzbass, by G. D. Lidin
Effect of copper, magnesium, iron and manganese on the mechanical properties and the structure of zinc silumin, by S. G. Glazunov
Effect of copper on the properties of cast iron, by V. A. Davidenkov.

[BULLETIN OF THE ACADEMY OF SCIENCES OF THE USSR. DIVISION OF TECHNICAL SCIENCE] 1944, NO. 4/5: [TABLE OF CONTENTS AND SELECTED ABSTRACTS IN THE FIELD OF PETROLEUM LITERATURE]. [1962] 4p.
Order from OTS or SLA $1.10 62-10870

Abstract trans. of Akademiya Nauk SSSR. Otdelenie Tekhnicheskikh Nauk. Izvestiya, 1944, no. 4/5, p. 229-238, 258-274, 322-324.

DESCRIPTORS: *Abstracts, *Petroleum, Scientific research, *Fuels, *Shale.

Contents:
Principal results of the scientific research activities of the technical department of the Academy of Sciences U.S.S.R. for 1943, by I. P. Bardin
Preparation of liquid fuel from bituminous shales by thermal dissolutions, by M. K. D'yakova
News items.

[BULLETIN OF THE ACADEMY OF SCIENCES OF THE USSR. DIVISION OF TECHNICAL SCIENCE] 1944, NO. 12: [TABLE OF CONTENTS AND SELECTED ABSTRACTS IN THE FIELD OF PETROLEUM LITERATURE]. [1962] 4p. 1 ref.
Order from OTS or SLA $1.10 62-10876

Abstract trans. of Akademiya Nauk SSSR. Otdelenie Tekhnicheskikh Nauk. Izvestiya, 1944, no. 12, p. 841-845, 858-869, 894-904.

DESCRIPTORS: *Abstracts, *Petroleum, *Gas generator systems, Combustion, *Stainless steel, *Shear stresses Scientific organizations.

Contents:
Propagation of combustion in underground gas generation by the flow method, by A. B. Chernyshev and I. L. Farberov
Properties of nitrogen-containing stainless steel, by A. M. Samarin
Reinforcement and the sensitivity toward shearing of high rigidity steels, by L. M. Pevzner
Researches carried out at the institutions of the Department of Technical Sciences, Academy of Sciences U.S.S.R. in 1943.

[BULLETIN OF THE ACADEMY OF SCIENCES OF THE USSR. DIVISION OF TECHNICAL SCIENCE] 1945, NO. 3: [TABLE OF CONTENTS AND SELECTED ABSTRACTS IN THE FIELD OF PETROLEUM LITERATURE]. [1962] 10p. 3 refs.
Order from OTS or SLA $1.10 62-10878

Abstract trans. of Akademiya Nauk SSSR. Otdelenie Tekhnicheskikh Nauk. Izvestiya, 1945, no. 3, p. 115-124, 165-175, 190-208, 237-241, 264-269, 272-275.

DESCRIPTORS: *Abstracts, *Petroleum, Scientific research, *Gas generator engines, *Surface-active substances, *Fuels, *Stratigraphy, Silicon alloys, Aluminum alloys, *Machine tool industry.

Contents:
Plan for scientific research work of the Department of Technical Sciences for 1945 covering the most important problems, by I. P. Bardin
Producer gas power units, by A. B. Chernyshev
Theory of wetting of a coal charge by additions of slight amounts of hydrocarbon liquids, by A. A. Agroskin and V. S. Zagrebel'naya
Effect of the stratigraphic depth of Kolchugin coal deposits in Kuznets basin on the solubility of the coal, by M. K. D'yakova and N. A. Davtyan
Preparation of silicoaluminum from the ash of Moscow province coals, by A. Yaskevich and A. Samarin
Session of the scientific council of the Institut of Machine Building, Academy of Sciences U. S. S. R. (Feb 45) by M. N. Buchin
Session of the scientific council of the Institute of Mineral Fuels (Feb 45) by E. A. Bars.

[BULLETIN OF THE ACADEMY OF SCIENCES OF THE USSR. DIVISION OF TECHNICAL SCIENCE] 1945, NO. 4/5: [TABLE OF CONTENTS AND SELECTED ABSTRACTS IN THE FIELD OF PETROLEUM LITERATURE]. [1962] 4p.
Order from OTS or SLA $1.10 62-10879

Abstract trans. of Akademiya Nauk SSSR. Otdelenie Tekhnicheskikh Nauk. Izvestiya, 1945, no. 4/5, p. 277-316, 447-448.

DESCRIPTORS: *Abstracts, *Petroleum, Scientific organizations, History.

Contents:
Technical sciences in the Academy of Sciences of the U.S.S.R. for 220 years, by I. P. Bardin
In the Department of Technical Sciences, by S. F. Yakubov.

[BULLETIN OF THE ACADEMY OF SCIENCES OF THE USSR. DIVISION OF TECHNICAL SCIENCE] 1945, NO. 6: [TABLE OF CONTENTS AND SELECTED ABSTRACTS IN THE FIELD OF PETROLEUM LITERATURE]. [1962] 5p. 8 refs.
Order from OTS or SLA $1.10 62-10880

Abstract trans. of Akademiya Nauk SSSR. Otdelenie Tekhnicheskikh Nauk. Izvestiya, 1945, no. 6, p. 453-466, 545-553, 566-591.

DESCRIPTORS: *Abstracts, *Petroleum, Scientific research, *Combustion, *Methanes, *Sorption, Coal.

Contents:
Principal outcomes of scientific research activity in the department of technical sciences during 1944, by I. P. Bardin
Flameless combustion, by G. N. Khudyakov and V. S. Pushkin
Controlling the methane liberation in working coal seams, by A. A. Skochinskii and G. D. Lidin
Sorption of methane by Donbass coal under high pressures, by V. T. Pal'velev.

[BULLETIN OF THE ACADEMY OF SCIENCES OF THE USSR. DIVISION OF TECHNICAL SCIENCE] 1945, NO. 7/8: [TABLE OF CONTENTS AND SELECTED ABSTRACTS IN THE FIELD OF PETROLEUM LITERATURE]. [1962] 4p. 4 refs.
Order from OTS or SLA $1.10 62-10881

Abstract trans. of Akademiya Nauk SSSR. Otdelenie Tekhnicheskikh Nauk. Izvestiya, 1945, no. 7/8, p. 746-763, 773-786.

DESCRIPTORS: *Abstracts, *Petroleum, *Fuels, *Coke.

Contents:
Dynamics of the process of low temperature carbonization of solid fuel, pt. 1, by Z. F. Chukhanov and E. A. Shapatina
Application of the method of moistening a coal charge.

[BULLETIN OF THE ACADEMY OF SCIENCES OF THE USSR. DIVISION OF TECHNICAL SCIENCES] 1945, NO. 10/11: [TABLE OF CONTENTS AND SELECTED ABSTRACTS IN THE FIELD OF PETROLEUM LITERATURE]. [1962] 4p.
Order from OTS or SLA $1.10 62-10882

Abstract trans. of Akademiya Nauk SSSR. Otdelenie Tekhnicheskikh Nauk. Izvestiya, 1945, no. 10/11, p. 1115-1126, 1149-1160.

DESCRIPTORS: *Abstracts, *Petroleum, *Combustion, *Liquids, Scientific research, Liquids.

Contents:
Burning of liquids from a free surface, by G. N. Khudyakov
Abstracts of studies carried out in the Department of Technical Sciences in 1944.

JOURNAL OF APPLIED CHEMISTRY, 1941, VOL. 14, NO. 6: [TABLE OF CONTENTS AND SELECTED ABSTRACTS IN THE FIELD OF PETROLEUM LITERATURE]. [1962] 6p. 8 refs.
Order from OTS orSLA $1.10 62-16821

Abstract trans. of Zhurnal Prikladnoi Khimii (USSR) 1941, v. 14, no. 6, p. 794-799, 809-815, ##827-833, ##849-855, 859-863.
##Complete translations are available from OTS or SLA $1.10 ea. as 61-18033 [1961] 6p. and 61-16939 [1961] 8p.

DESCRIPTORS: *Abstracts, *Petroleum, *Gas analysis, *Polyvinyl chloride, *Benzaldehydes, *Tar, *Colloids.

Contents:
Distribution of methyl alcohol between a vapor-air mixture and water under conditions of equilibrium, by N. V. Chalov and I. P. Tsvetaeva
Polyvinyl derivatives. I. Some reactions of polyvinyl chloride, by V. V. Korshak and V. A. Zamyatina
##Preparation of benzaldehyde by oxidation of toluene with the aid of electrically regenerated oxidizing agents, by L. D. Margolis
##Substances isolated from primary tars with petroleum ether, II, by V. I. Zabavin
Coagulation of emulsified tars, by V. T. Ruff and O. I. Martynova.

JOURNAL OF APPLIED CHEMISTRY, 1943, VOL. 16, NO. 3/4: [TABLE OF CONTENTS AND SELECTED ABSTRACTS IN THE FIELD OF PETROLEUM LITERATURE]. [1962] 3p. 2 refs.
Order from OTS or SLA $1.10 62-16818

Abstract trans. of Zhurnal Prikladnoi Khimii (USSR) 1943, v. 16, no. 3/4, p. 81-94, 129-133, 142-150.
##Complete translations of p. 81-86 are available from LC or SLA mi$1.80, ph$1.80 as 60-15018, BCRA Trans-116, Jan 45 [7]p. and of p. 143-150 from OTS or SLA $1.10 as 61-16984 [1961] 8p.
###Condensed translations are available from OTS or SLA $1.10 each of p. 87-94 as 61-16958 [1961] 5p. and p. 129-133 as 61-16985 [1961] 5p.

DESCRIPTORS: *Petroleum, *Sodium compounds, Chlorides, *Silicates, *Catalysts, Temperature, Silicon compounds, *Gels, *Camphenes, Synthesis, *Oils, *Distillation, *Abstracts.

Contents:
##Common salt as a catalyst for reactions of formation of silicates in the solid phase, by L. M. Blyumen
###Determination of thermal constants of activated charcoal and silica gel, by L. K. Simonova
###Hydration of camphene to isoborneol, by L. M. Pesin and others
##Synthetic oils from cracking distillates, by M. G. Mamedli.

JOURNAL OF APPLIED CHEMISTRY, 1943, VOL. 16, NO. 5/6: [TABLE OF CONTENTS AND SELECTED ABSTRACTS IN THE FIELD OF PETROLEUM LITERATURE]. [1962] 7p. 23 refs.
Order from OTS or SLA $1.10 62-16817

Abstract trans. of Zhurnal Prikladnoi Khimii (USSR) 1943, v. 16, no. 5/6, p. 161-171, 211-218, 234-240.

DESCRIPTORS: *Abstracts, Chemistry, *Corrosion, *Aluminum alloys, *Zinc alloys, *Lithium alloys, Synthesis, *Salts, *Mercaptan (SH), *Rubber, *Lignin, *Colorimetric analysis, *Petroleum.

Contents:
Mechanical properties of alloys of aluminum with zinc and lithium, by T. A. Badaeva and F. I. Shamrai
Synthesis of aluminum and magnesium salts of mercaptobenzothiazole, by K. D. Petrov and A. M. Fedorchenkova
Preparation of the zinc salt of mercaptobenzothiazole and its conversions in the process of vulcanization of rubber, by K. D. Petrov
Color reactions for lignin and their utilization in analytical chemistry, by P. M. Iskaov.

JOURNAL OF APPLIED CHEMISTRY, 1943, VOL. 16, NO. 7/8: [TABLE OF CONTENTS AND SELECTED ABSTRACTS IN THE FIELD OF PETROLEUM LITERATURE]. [1962] 3p.
Order from OTS or SLA $1.10 62-16816

Abstract trans. of Zhurnal Prikladnoi Khimii (USSR) 1943, v. 16, no. 7/8, p. 280-282, 296-306, 312-319.

DESCRIPTORS: *Abstracts, *Petroleum, *Synthesis, *Thiamine, *Coal, Petrology, *Magnesium.

Contents:
Vitamin B_1. IV. Technical synthesis of 4-methyl-5-(β-hydroxyethyl)-thiazole, by Ya. M. Slobodin and others
Thermal solution of solid fuels. III. Coals and their petrographic ingredients, by M. K. D'yakova and N. V. Melent'eva
Magnesium deposits in northern Caucasus and possible ways of their utilization, by N. Efremov.

[JOURNAL OF APPLIED CHEMISTRY] 1944, VOL. 17, NO. 11/12: [TABLE OF CONTENTS AND SELECTED ABSTRACTS IN THE FIELD OF PETROLEUM LITERATURE]. [1962] 4p. 4 refs.
Order from OTS or SLA $1.10 62-14158

Abstract trans. of Zhurnal Prikladnoi Khimii (USSR) 1944, v. 17, no. 11/12, p. 606-611, 623-627, 629-633, 650-655.
##Complete translations are available from OTS or SLA $1.10 ea. of p. 623-627 as 61-18347 [1961] 6p.; p. 629-633 as 61-18346 [1961] 4p. and a condensed trans. $1.10 of p. 650-655 as 61-18345 [1961] 4p.

DESCRIPTORS: Chemistry, *Abstracts, *Petroleum, Polymerization, *Maleic acid, *Glycols, *Diphenylmethanes, Hydrogenation, *Benzenes, *Formaldehyde, Creosote, *Pyrocatechol, *Phenols, Ethers.

Contents:
Research on polymerization and drying of oils and esters of fatty acids. VI. Glycol polyesters of maleic acid, by A. Ya. Drinberg and V. M. Grinevich
##Research on diphenylmethane and its derivatives. III. Destructive hydrogenation of diphenylmethane, by R. L. Globus and N. K. Moshchinskaya
##Research on diphenylmethane and its derivatives. IV. Destructive hydrogenation of high molecular products of condensation of benzene with formaldehyde, by M. K. Moshchinskaya
##Preparation of pyrocatechol from wood creosote by decomposition of phenol ethers under atmospheric pressure, pt. III, by V. P. Sumarokov and V. N. Bogoyavlenskaya

[JOURNAL OF APPLIED CHEMISTRY] 1945, VOL. 18, NO. 4/5; [TABLE OF CONTENTS AND SLECTED ABSTRACTS IN THE FIELD OF PETROLEUM LITERATURE]. [1962] 10p. 11 refs.
Order from OTS or SLA $1.10 62-14161

Abstract trans. of Zhurnal Prikladnoi Khimii (USSR) 1945, v. 18, no. 4/5, p. 193-206, 217-220, 230-246, 259-262, 271-283.
##A complete trans. of p. 193-206, is available from OTS or SLA $2.60 as 62-23951, Courtaulds ML-3370, 12 Sep 61 [21]p.

DESCRIPTORS: Chemistry, *Abstracts, *Petroleum, *Solvent extraction, *Vapors, Oxidation, *Camphenes, *Thiourea, Separation, *Electrolytic polishing, *Nickel, *Pyridines, Coal tar, *Bentonites, Catalysts, *Phenols, Quinones, Vinyl chlorides, *Varnishes.

Contents:
##Research on recovery of vapors of volatile solvents on solid sorbents. IX. A study of desorption of volatile solvents from a carbon layer, by E. V. Alekseevskii and Z. S. Vanyushina
Activation of the process of oxidation of camphene. II. Oxidation of camphene in emulsions, by A. A. Berlin and others
Method of preparation of thiourea from calcium cyanamide, by E. A. Shilov
Electrochemical polishing of metals. I. Electrochemica polishing of nickel, by V. I. Lainer
Isolation of pyridine homologs from coal tar bases. I. Isolation of 2,6-dimethylpyridine, by A. M. Grigorovskii and Z. M. Kimen
Investigation of Georgian bentonites as dehydrating catalysts. I. Askanite as a dehydrating contact agent, by Kh. I. Areshidze and E. A. Tavartkiladze
Quantitative determination of small amounts of monohydric phenol in the presence of polyhydric phenols and quinone, by I. I. Ioffe and E. Sokolova
Polyvinyl chloride varnishes, by A. Ya. Drinberg

JOURNAL OF GENERAL CHEMISTRY, 1940, VOL. 10, NO. 4: [TABLE OF CONTENTS AND SELECTED ABSTRACTS IN THE FIELD OF PETROLEUM LITERATURE]. [1962] 4p. 5 refs.
Order from OTS or SLA $1.10 62-16832

Abstract trans. of Zhurnal Obshchei Khimii (USSR) 1940, v. 10, no. 4, p. ##305-318, 380-384.
##A complete trans. is available from SLA as R-4089, 27p.

DESCRIPTORS: *Abstracts, *Petroleum, *Mercury compounds, *Nitrogen compounds, *Selenium, *Sulphur, *Chromium compounds, Hydroxides.

Contents:
##Nitrogen compounds of mercury as initiators of the chemical activity of selenium: their role in formation of azo compounds as azines and dyes from aromatic amines under the action of sulfur and selenium, by P. S. Pishchimuka
Chromium hydroxides, by S. I. D'yachkovskii and V. K. Rubtsova.

JOURNAL OF GENERAL CHEMISTRY, 1944, VOL. 14, NO. 3: [TABLE OF CONTENTS AND SELECTED ABSTRACTS IN THE FIELD OF PETROLEUM LITERATURE] [1962] 4p. 6 refs.
Order from OTS or SLA $1.10 62-10846

Abstract trans. of Zhurnal Obshchei Khimii (USSR) 1944, v. 14, no. 3, p. 129-136, ##148-160 and 196-197.
##A complete trans. is available from OTS or SLA $1.10 as 61-18193 [1961] 10p.

DESCRIPTORS: *Petroleum, *Abstracts, *Silver compounds, Sulfates, Absorption, Colloids, Silicon compounds, Oxides, Aluminum compounds, Hydroxides, *Benzenes Hydrogenation, Butyl radicals, Synthesis.

Contents:
Mechanism of adsorption of silver sulfate on sols of silica and aluminum hydroxide, by V. N. Krestinskaya and Z. V. Khakimov
##Detructive hydrogenation of benzene, by G. N. Maslyanskii
Synthesis of difurylbutynediol, by V. D. Yasnopol'skii

JOURNAL OF GENERAL CHEMISTRY, 1944, VOL. 14, NO. 4/5: [TABLE OF CONTENTS AND SELECTED ABSTRACTS IN THE FIELD OF PETROLEUM LITERATURE]. [1962] 8p. 6 refs.
Order from OTS or SLA $1.10 62-10847

Abstract trans. of Zhurnal Obshchei Khimii (USSR) 1944, v. 14, no. 4/5, p. 261-279 and 299-302.
##A complete trans. of p. 274-279 is available from SLA as R-3960, 10p.

DESCRIPTORS: *Petroleum, *Abstracts, *Iron, Acids Nitric acid, Sulfuric acid, Hydrochloric acid, Catalysts, *Boron compounds, Fluorides, *Cyclohexenes, Condensation reactions, *Carboxylic acids, *Acetylene derivatives *Allenes, Isomeric transitions, *Cyclopentenes, Ketones.

Contents:
Action of mineral acids on iron, by A. I. Krasil'shchikov
Boron fluoride as a catalyst in organic chemistry. II. Condensation of cyclohexene with carboxylic acids, by S. V. Zavgorodnii
##Hypothesis of additional affinity of the carbon atom: the part played by so-called monovalent radicals in isomeric conversions of acetylene and allene derivatives, by A. E. Favorskii
Attempted synthesis of a cyclopentene ketone, I, by V. I. Esafov.

JOURNAL OF GENERAL CHEMISTRY, 1945, VOL. 15, NO. 6: [TABLE OF CONTENTS AND SELECTED ABSTRACTS IN THE FIELD OF PETROLEUM LITERATURE]. [1962] 17p. 81 refs.
Order from OTS or SLA $1.60 62-10862

Abstract trans. of Zhurnal Obshchei Khimii (USSR) 1945, v. 15, no. 6, p. 385-406, 408-419, 421-445, 461-486, 488-529, 565-579.
##A complete trans. of p. 565-573 is available from SLA as RT-3901, 18p.

DESCRIPTORS: *Petroleum, *Abstracts, *Vinyl radicals, Ethers, Bromides, Synthesis, *Acetylenes, Alkoxy radicals, *Alcohols, Acetyl radicals, *Cyclohexenes, Hydrogenation, Molecular isomerism, *Carbinols, Methyl radicals, Propyl radicals, Hydrochloric acid, Butyl radicals, Silver compounds, Acetates, *Allenes, Ethyl radicals, *Diene synthesis, *Azo compounds, Phenols, Oxides, *Ketols, *Pentanols, *Pinacholenes, Magnesium compounds, Polymers, *Malonic esters.

Contents:
Preparation and properties of β-bromovinyl alkyl ethers by A. E. Favorskii and M. N. Shchukina
Preparation and properties of alkoxyacetylenes, by A. E. Favorskii and M. N. Shchukina
Synthesis of tertiary acetylenic alcohols, by V. I. Nikitin
Synthesis of trihydric tertiary acetylenic alcohols and their conversions. I. Synthesis of 2, 3, 6-trimethyl-4-heptyne-2, 3, 6-triol, by V. I. Nikitin
Hydrogenation of 1-acetylenyl-1-cyclohexanol and 1-acetylenyl-1-cyclohexene: synthesis of 1-vinyl-1-cyclohexene, by I. N. Azerbaev
Research on isomeric conversions of unsaturated aliphatic halogen derivatives. VII. Interaction of dimethylcyclopropylcarbinol with hydrochloric acid. by T. A. Favorskaya and Sh. A. Fridman
Intramolecular rearrangements in the acetylene series. I. Interaction of 3-chloro-3-methyl-1-butyne with silver acetate, by A. I. Zakharova
Action of concentrated hydrochloric acid on tetramethylbutynediol, by A. I. Zakharova and I. M. Stroiman
Research in the allene series. II. Preparation of asymmetrical diethylallene, by Ya. I. Ginzburg
Research on unsaturated cyclic hydrocarbons and their halogenated derivatives. V. Attempted synthesis of 1, 2-cyclohexadiene, by N. A. Domnin
Research on unsaturated cyclic hydrocarbons and their halogen[ated] derivatives. VI. Formation of toluene from 1-methyl-3, 4-dibromo-3-cyclohexene, by N. A. Domnin
Formation of a semicyclic double bond in a three-carbon atom ring. III. Interaction of aliphatic diazo compounds with allene hydrocarbons, by I. Ya. D'yakonov
Condensation of tetraphenylbutynediol with phenol, by Yu. S. Zal'kind and others
Research on α-keto oxides. I. Hydrogenation of aliphatic-aromatic α-keto oxides, by T. I. Temnikova and V. F. Martynov
Research on isomeric conversion of α-keto alcohols: dimethylbenzoylcarbinol and diphenylacetylcarbinol, by T. I. Temnikova
Effect of radicals on isomeric conversions of tertiary α-keto alcohols. IV. Isomerization of 2, 4-dimethyl-4-phenyl-2-pentanol-3-one, by A. M. Khaletskii
##Action of pinacoline on tertiary butylmagnesium chloride in solution, by V. M. Tol'stopyatov and I. V. Voroshilova
Research on high polymer compounds. I. Methylenemalonic ester and its polymers, by A. A. Vansheidt and others.

JOURNAL OF GENERAL CHEMISTRY, 1945, VOL. 15, NO. 7/8: [TABLE OF CONTENTS AND SELECTED ABSTRACTS IN THE FIELD OF PETROLEUM LITERATURE]. [1962] 6p. 7 refs.
Order from OTS or SLA $1.10 62-10863

Abstract trans. of Zhurnal Obshchei Khimii (USSR) 1945, v. 15, no. 7/8, p. 596-599, ##608-617, 619-626, 628-634, 639-649, 654-656.
##A complete trans. is available from SLA as RT-2588, 25p.

DESCRIPTORS: *Petroleum, *Abstracts, *Complex compounds, *Aluminum compounds, Bromides, *Xylenes, Catalysis, Hydrogenation, Dehydrogenation, Reaction kinetics, *Nickel catalysts, *Platinum catalysts, *Deuterium, Drugs, *Antimalarials, Synthesis, Aldehydes, *Acrylic acids, Esters, Methyl radicals, *Carboxylic acids, *Alcohols, Molecular isomerism, *Quinones, Napthyl radicals.

Contents:
Compounds of aluminum bromide with p- and m-xylene, by V. A. Plotnikov and N. N. Gratsianskii
##Catalytic hydrogenation. I. Kinetic equation for hydrogenation: hydrogenation and dehydrogenation over nickel catalysts, by A. A. Balandin
Catalytic hydrogenation. II. Catalytic hydrogenation over nickel and platinum: hydrogenation with deuterium, by A. A. Balandin
Synthesis of new antimalaria substances: derivatives of glutacone dialdehyde, by I. L. Knunyants and T. Ya. Kefeli
Cyclopentyl and cyclohexyl esters of acrylic acid, by A. V. Ipatov
Synthesis and investigation of 4-methyl-2-hexyn-4-ol-1-carboxylic acid, by B. I. Mikhant'ev
Isomerization of an alcohol with two double bonds, by Yu. S. Zal'kind and A. I. Kul'kov
Synthesis of 2-methyl-1, 4-naphthoquinone, by N. S. Nikolaev.

JOURNAL OF GENERAL CHEMISTRY, 1945, VOL. 15, NO. 9/10: [TABLE OF CONTENTS AND SELECTED ABSTRACTS IN THE FIELD OF PETROLEUM LITERATURE]. [1962] 5p. 18 refs.
Order from OTS or SLA $1.10 62-10866

Abstracts trans. of Zhurnal Obshchei Khimii (USSR) 1945, v. 15, no. 9/10, p. 766-795.

DESCRIPTORS: *Petroleum, *Abstracts, *Phosphinous acids, Phenyl radicals, Esters, Propyl radicals, Catalysis, *Hydrogenation, Theory, *Copper catalysts, *Paladium catalysts, Hydrogen, Surface properties, Mixtures, *Ethanols, Chlorides, Synthesis, Copper compounds, Salts.

Contents:
Isopropyl ester of phenylphosphinic acid, by A. E. Arbuzov and others
Catalytic hydrogenation. III. A more precise statement of the theory: hydrogenation over copper and palladium, by A. A. Balandin
Catalytic hydrogenation. IV. Change in the hydrogen surface: selective hydrogenation of mixtures, by A. A. Balandin
Research on synthesis of 2-chloroethanol. I. Pseudocatalytic effect of copper salts in preparation of 2-chloroethanol by the method of Gomberg, by E. A. Shilov and others.

JOURNAL OF GENERAL CHEMISTRY, 1945, VOL. 15, NO. 11/12: [TABLE OF CONTENTS AND SELECTED ABSTRACTS IN THE FIELD OF PETROLEUM LITERATURE]. [1962] 7p. 19 refs.
Order from OTS or SLA $1.10 62-10867

Abstract trans. of Zhurnal Obshchei Khimii (USSR) 1945, v. 15, no. 11/12, p. 925-938 and 962-966.

DESCRIPTORS: *Petroleum, *Abstracts, Catalysts, Polymers, *Sulfides, Synthesis, *Rubber, *Vulcanization, *Ethylenes, Methyl radicals, Propyl radicals, Oxides, Halogens, Hydrogen compounds, *Halides, *Toluenes, Oxidation, *Benzoic acids, *Manganese compounds, Dioxides.

Contents:
Synthesis of polysulfide accelerators of rubber vulcanization, by S. S. Livshits and N. A. Preobrazhenskii
Order of addition of hydrogen halides to halogen derivatives of oxides of trimethylethylene and isopropylethylene, by A. A. Petrov
Oxidation of toluene derivatives to benzoic acids with pyrolusite, by I. Kh. Fel'dman.

JOURNAL OF PHYSICAL CHEMISTRY, 1941, VOL. 15, NO. 9: [TABLE OF CONTENTS AND SELECTED ABSTRACTS IN THE FIELD OF PETROLEUM LITERATURE]. [1962] 3p. 9 refs.
Order from OTS or SLA $1.10 62-16837

Abstract trans. of Zhurnal Fizicheskoi Khimii (USSR) 1941, v. 15, no. 9, p. 1022-1028, 1059-1060.

DESCRIPTORS: *Abstracts, *Petroleum, *Molecular properties, *Polymers, *Gases, Solubility, *Argon, Air.

Contents:
Peculiarities of the physical properties of highly polymerized substances, by V. A. Kargin and G. L. Slonimskii
Limited mutual solubility of gases under high pressures, by I. R. Krichevskii and D. S. Tsiklis
Concerning the study of N. S. Torocheshnikov and V. A. Ershova, entitled "Increase of the coefficient of extraction of argon from air", by F. F. Kharakhorin.

[JOURNAL OF PHYSICAL CHEMISTRY] 1945, VOL. 19, NO. 1/2: [TABLE OF CONTENTS AND SELECTED ABSTRACTS IN THE FIELD OF PETROLEUM LITERATURE]. [1962] 7p. 20 refs.
Order from OTS or SLA $1.10 62-10883

Abstract trans. of Zhurnal Fizicheskoi Khimii (USSR) 1945, v. 19, no. 1/2, p. 1-91.
##Complete translations are available from SLA of p. 15-47, 48-71, 72-82 as R-3370, R-3369, R-3332.

DESCRIPTORS: *Petroleum, *Abstracts, *Surface tension, *Metals, Oxidation, *Hydrogen compounds, *Sulfides, Dynamics, *Catalysis, *Crystal structure, Pressure, *Gases, Absorption, Fatty acids, *Gels, Silicon, *Porosity.

Contents:
Electrocapillary effect of reducing the hardness of metals, by P. A. Rebinder and E. K. Venstrem
##Oxidation of hydrogen sulfide from the point of view of the kinetics of intermediate reaction products, by N. M. Emanuel
##Principle of ensemble and aggravation in catalysis. I. Method of fluctuation analysis of active centers: Catalysis in the region of precrystalline structures, by N. I. Kobozev and others
##Partial pressures in real gaseous mixtures, by M. Temkin
Adsorption of fatty acids on silica gel and its ultraporosity, by A. V. Kiselev and others.

JOURNAL OF PHYSICAL CHEMISTRY, 1945, VOL. 19 No. 7/8: [TABLE OF CONTENTS AND SELECTED ABSTRACTS IN THE FIELD OF PETROLEUM LITERATURE]. [1962] 3p. 3 refs.
Order from OTS or SLA $1.10 62-10843

Abstract trans. of Zhurnal Fizicheskoi Khimii (USSR) 1945, v. 19, no. 7/8, p. 376-381 and 392-404.

DESCRIPTORS: *Petroleum, *Abstracts, Chemical reactions, *Catalysis, Theory, Diffusion, *Hydrogen, *Nitrogen, *Ammonia, Mixtures, *Thermodynamics.

Contents:
Theory of diffusion retardation of heterogeneous catalytic reactions, by S. Ya. Pshezhetskii
Thermodynamic properties of hydrogen-nitrogen-ammonia mixtures, by Ya. S. Kazarnovskii.

JOURNAL OF PHYSICAL CHEMISTRY, 1945, VOL. 19, NO. 9: [TABLE OF CONTENTS AND SELECTED ABSTRACTS IN THE FIELD OF PETROLEUM LITERATURE]. [1962] 4p. 6 refs.
Order from OTS or SLA $1.10 62-10844

Abstract trans. of Zhurnal Fizicheskoi Khimii (USSR) 1945, v. 19, no. 9, p. 405-428 and 469-484.

DESCRIPTORS: *Petroleum, *Abstracts, *Chlorine, Hydrolysis, Determination, *Carbon, Gases, Dynamics, *Thermodynamics, High pressure research.

Contents:
Direct determination of the rate of hydrolysis of chlorine, by S. N. Solodushenkov and E. A. Shilov
Dynamics of gas formation in a carbon layer, by Kh. I. Kolodtsev
Method of deviation coefficients in the technical thermodynamics of high pressures, by A. M. Rozen.

JOURNAL OF PHYSICAL CHEMISTRY, 1945, VOL. 19, NO. 10/11: [TABLE OF CONTENTS AND SELECTED ABSTRACTS IN THE FIELD OF PETROLEUM LITERATURE]. [1962] 4p. 5 refs.
Order from OTS or SLA $1.10 62-10845

Abstract trans. of Zhurnal Fizicheskoi Khimii (USSR) 1945, v. 19, no. 10/11, p. 551-564.

DESCRIPTORS: *Carbon compounds, Monoxides, Combustion, Catalysts, *Peroxidase, *Silicon compounds, Oxides, *Gels, *Petroleum, *Abstracts.

Contents:
Combustion of carbon monoxide, by N. A. Karzhavina
Peroxidase function of silica gel, by L. A. Nikolaev and N. I. Kobozev.

[TRANSACTIONS (REPORTS) OF THE ACADEMY OF SCIENCES OF THE USSR] 1941, VOL. 32, NO. 9: [TABLE OF CONTENTS AND SELECTED ABSTRACTS IN THE FIELD OF PETROLEUM LITERATURE]. [1962] 2p.
Order from OTS or SLA $1.10 62-16780

Abstract trans. of [Akademiya Nauk SSSR]. Comptes Rendus (Doklady) de l'Academie des Sciences de l'U. R. S. S., 1941, v. 32, no. 9, p. 630-632 and p. 637-640.

DESCRIPTORS: *Abstracts, *Petroleum, *Vinyl radicals, Ethers, *Cellulose, *Radioactivity, Helium, *Minerals, Beryllium, Boron, Lithium.

Contents:
Vinyl ethers of cellulose, by A. E. Favorskii and others
Radioactivity and helium content of beryllium, boron and lithium minerals of the U. S. S. R., by V. G. Khlopin and Sh. A. Abidev.

[TRANSACTIONS (REPORTS) OF THE ACADEMY OF SCIENCES OF THE USSR] 1943, VOL. 40, NO. 7: [TABLE OF CONTENTS AND SELECTED ABSTRACTS IN THE FIELD OF PETROLEUM LITERATURE]. [1962] 3p. 3 refs.
Order from OTS or SLA $1.10 62-16770

Abstract trans. of Akademiya Nauk SSSR. Comptes Rendus (Doklady) de l'Academie des Sciences de l'U. R. S. S., 1943, v. 40, no. 7, p. 296-300, 311-319, 324-332.

DESCRIPTORS: *Abstracts, *Petroleum, *Methanes, Substitution reactions, Halogenation, *Bauxite, Chemical bonds, *Tungsten, *Ores, Geological survey, *Iron, Molecular association, *Rubber, Plants, Reproduction.

Contents:
Determination of potential energy constants of halogen-substituted methanes, by B. I. Stepanov
Properties of bauxites of the Vyazov field as indicated by heating curves, by Ya. A. Fialkov and A. I. Tsvetkov
Investigation of the intramolecular hydrogen bond by the method of combination scattering of light, by M. I. Bateuv
New tungsten deposits in Middle Ural, by B. Kupletskii
Geologic basis for prospecting for iron-nickel ores in Middle Ural, by B. P. Krotov and A. L. Yanitskii
Vegetative reproduction of rubber-bearing plants kok-sagyz, tau-sagyz and krym-sagyz, by G. Kh Molotkovskii.

Pen, Shao-I.
CHEMISTRY IN CHINA. [1962] 4p. [Warren Spring Lab. Trans.] NT 504; [DSIR] NLL M. 3603.
Order from OTS or SLA $1.10 62-25289

Trans. of Akademiya Nauk [SSSR]. Vestnik, 1955 [v. 25] no. 6, p. 21-24.

DESCRIPTORS: *Chemistry, *China, Scientific research

Postovskii, I. Ya., Beilis, R. G., and Teodorovich, G. I.
CHEMISTRY OF NAPHTHACENE: MESODICHLORONAPHTHACENE [AND] SULFUR IN BUGURUSLAN REGION. [1962] 3p. 2 refs.
Order from OTS or SLA $1.10 62-16775

Abstract trans. of [Akademiya Nauk SSSR]. Comptes Rendus (Doklady) de l'Academie des Sciences de l'U. R. S. S., 1943, v. 39, no. 3, p. 102-105 and 118-120.

DESCRIPTORS: *Naphthacenes, Chlorides, Chemical properties, *Sulfur, Deposits.

Samsonov, G. V., Markovskii, L. Ya. and others.
BORON, ITS COMPOUNDS AND ALLOYS. July 62, 624p. NASA N62-16762.
Order from OTS $7.00/set AEC-tr-5032(bks. 1-2)

Trans. of mono. Boron, Ego Soedineniya i Splavy, Kiev, 1960 [590p.].

DESCRIPTORS: *Boron, Boron compounds, Boron alloys, Geochemistry, *Ores, *Organoborants, Hydrides, *Boric acids, Anhydrides, Oxides, Borates, Carbon, Silicon, Hydrogen, Germanium, Tin, Lead, Nitrogen, Phosphorus, Bismuth, Sulfur, Selenium, Halides, *Al-

loys, Alkali metal alloys, Copper alloys, Gold alloys, Silver alloys, Alkaline earth metals, Zinc alloys, Cadmium alloys, Mercury alloys, Aluminum alloys, Gallium alloys, Indium alloys, Thallium alloys, Transition elements, Thermoelectricity, Thermionic emission, Superconductivity, Magnetic properties, Titanium alloys, Zirconium alloys, Hafnium alloys, Vanadium alloys, Niobium alloys, Tantalium alloys, Chromium alloys, Molybdenum alloys, Tungsten alloys, Manganese alloys, Rhenium alloys, Cobalt alloys, Platinum alloys, Rare earth elements, Thorium alloys, Uranium alloys, Nickel alloys, *Chemical analysis, *Crystals, *Heat resistant alloys

The book discusses the bases of the geochemistry of boron, boron raw materials and their processing, the production, properties, and use of elementary boron, boranes, boron halides, the properties, methods of production, metallography, and crystallochemistry of alloys of boron with metals and nonmetals. A description is given of all the known systems in which boron participates; and problems of the use of alloys of boron in the production of heat-resistant alloys, radiotechnology and electrotechnology, machine construction, metallurgy, and chemistry are discussed in detail. (Soviet Editor's Note)

Splitek, Rudolf.
A FULLY AUTOMATIC APPARATUS FOR DIFFERENTIAL AND GRAVIMETRIC THERMOANALYSIS. [1962] 31p. 116 refs.
Order from SLA $3.60 62-14782

Trans. of Hutnicke Listy (Czechoslovakia) 1958, v. 13 no. 8, p. 697-705.

DESCRIPTORS: *Instrumentation, *Calorimetry, Gravimetric analysis, Automation, Metallurgy, *Galvanometers, *Recording devices.

Thiemann, Walter.
BURET, tr. by P. C. C. 20 July 62, 3p. (2 figs. omitted).
Order from OTS or SLA $1.10 62-32223

Trans. of German patent 717,456, cl. 42L, gr. 3/02, by Spinnfaser AG., pat. from 25 Aug 39, grant announced 29 Jan 42, pub. 14 Feb 42.

DESCRIPTORS: *Pipettes, Liquids, Volumetric analysis, Laboratory equipment.

A buret comprising a seal-forming piston arranged above the liquid level in the buret tube is proposed, characterized in that a piston provided with a vernier scale rises when liquid is introduced into the buret upon opening of a filling cock and sinks with the liquid column when the buret is emptied.

Volkov, B. V.
THE EFFECT OF WATER ON THE FORMATION OF COMPLEX COMPOUNDS OF ALUMINUM CHLORIDE WITH AROMATIC HYDROCARBONS. [1962] 3p.
Order from ATS $5.25 ATS-29P64R

Trans. of #Zh[urnal] Prikl[adnoi] Khim[ii] (USSR) 1962, v. 35, no. 5, p. 1136-1138.

DESCRIPTORS: *Complex compounds, *Aluminum compounds, *Chlorides, *Hydrocarbons, Water.

Analytical Chemistry

ANALYSIS OF GASES AND METALS. 25 Oct 62 [14]p. 7 refs. FTD-TT-62-1338.
Order from OTS or SLA $1.60 63-13911

Unedited rough draft trans. of Akademiya Nauk SSSR. Komissiya po Analiticheskoi Khimii. [Trudy] 1960, v. 10[13] p. 91-96 and 117-121.

DESCRIPTORS: Gases, Metals, Chemical analysis, *Oxygen, Detection, *Alkali metals, *Sodium, *Potassium, Alloys, Eutectics, Separation, Mercury, Towers (Chemistry), Laboratory equipment.

Contents:
Detecting oxygen in alkali metals and their alloys by the method of mercury extraction, by E. D. Malikova and Z. M. Turovtseva
Methods of preparing analysis samples of alkali metals for vacuum extraction, by V. T. Kharlamov.

Akshin, P. A. and Nikitin, O. T., and [Panchenkov, G. M.].
NOUVEL ÉMETTEUR EFFICACE D'IONS POUR L'ANALYSE ISOTOPIQUE DU PLOMB [A New Effective Ion Emitter for the Isotopic Analysis of Lead] tr. by Rosoff. 23 Mar 62 [14]p. 24 refs. CEA Trans. no. R 1598 (text in French).
Order from OTS or SLA $1.60 62-33152

Trans. in French of Geokhimiya (USSR) 1957 [no. 5] p. 425-[429].

DESCRIPTORS: *Lead, Isotopes, Determination, *Ion sources, *Geochemistry.

Fedoseev, P. N. and Ignatenko, L. S.
A METHOD FOR THE SEPARATE QUANTITATIVE DETERMINATION OF NITROGEN, CARBON, AND HYDROGEN IN ORGANIC COMPOUNDS. [1962] 4p.
Order from OTS or SLA $1.10 62-18973

Trans. of Russian patent 109, 422, 1958.

DESCRIPTORS: *Quantitative analysis, *Organic compounds, *Nitrogen, *Carbon, *Hydrogen, *Combustion, *Vacuum apparatus.

Method for the separate quantitative determination of nitrogen carbon, and hydrogen in organic compounds by combustion in the presence of CuO, characterized by the fact that, in order to simplify and speed up the analysis, combustion of the organic compounds is carried out in a sealed tube under vacuum. (Author)

Kalinchenko, L. B., Strakhov, N. [P.], and Kalinchenko, I. I.
NOUVELLE RÉACTION COLORÉE POUR L'ANALYSE ET LE DOSAGE DU BÉRYLLIUM AVEC LE BLEU DE CHROME "K" [New Color Reaction for the Ascertainment and Determination of Beryllium with Chrome-Blue K] [Novaya Tsvetnaya Reaktsiya dlya Otkrytiya i Opredeleniya Berilliya s Khromsinim K] tr. by B. Vinogradoff. 13 Apr 62 [5]p. CEA Trans. no R 1603 (text in French).
Order from OTS or SLA $1.10 62-33256

Trans. in French of #Zavodsk[aya] Lab[oratoriya](USSR) 1958, v. 24, no. 1, p. 22-23.

DESCRIPTORS: *Beryllium, Determination, *Colorimetric analysis, *Chemical indicators, Chromium compounds, Dyes.

Kovalenko, N. N. and Moricheva, N. P.
PHOTOCOLORIMETRIC DETERMINATION OF ANTIMONY IN ZINC ELECTROLYTES AND ALLOYS (Fotokolorimetricheskoe Opredelenie Sur'my v Tzinkovykh Elektrolitakh i Splavakh). Sep 62 [11]p. 20 refs. RTS 2128.
Order from OTS or SLA $1.60 62-32956

Trans. of Izv[estiya] Vyssh[ikh] Ucheb[nykh] Zav[edenii]. Khim[iya] i Khimicheskaya Tekhnologiya (USSR) 1959, v. 2, no. 3, p. 322-327.

DESCRIPTORS: *Antimony, *Colorimetric analysis, *Zinc alloys, *Electrolytes, Iron, Nitrites, Sodium compounds, Benzenes, Salts, Hydrochloric acid.

Copper, nickel, cadmium and manganese salts in quantities present as admixtures in the composition of zinc electrolytes do not interfere with the determination of small concentrations of antimony using methyl violet. Zinc salts in large quantities do not appreciably effect the accuracy of antimony determination by the method described. Iron in concentrations of up to 10 mg per 50 ml of solution does not disturb the determination of antimony, but that for larger amounts it is necessary to increase the concentrations of hydrochloric acid and of sodium nitrite to obtain complete extraction of the antimony from aqueous solution by benzene. The colorimetric method with methyl violet gives satisfactory results for determining small to relatively large concentrations of antimony in the alloys of non-ferrous metals. The margin of error does not exceed 5%. (Author)

Luskina, B. M. and Svyatsillo, S. V.
MICRODOSAGE DU CARBONE ET DE L'HYDROGÈNE DANS LES COMPOSÉS AROMATIQUES PAR CHROMAGRAPHIE GAZEUSE [Microdetermination of Carbon and Hydrogen in Organic Compounds by Gas Chromatography] tr. by Kefeli. 1 Mar 62 [10]p. 5 refs. CEA Trans. no. R1574 (text in French).
Order from OTS or SLA $1.10 62-33264

Resume trans. in French of Akad[emiya] Nauk SSSR. Dokl[ady] 1961, v. 141, no. 4, p. 869-870.
A trans. in English is available from OTS or SLA $1.10 as 62-14995 [1962] [6]p.

DESCRIPTORS: Organic compounds, *Carbon, *Hydrogen, Microanalysis, *Gas chromatography.

Morozov, V. A.
COLORIMETRIC DETERMINATION OF LEAD IN ATMOSPHERIC AIR. [1962] 2p. [Warren Spring Lab. Trans.] NT564; [DSIR] NLL M. 4974.
Order from OTS or SLA $1.10 62-25898

Trans. of Gigiena i Sanit[ariya] (USSR) 1954 [v. 19, no. 9] p. 46.

DESCRIPTORS: *Atmospheric pollution, *Lead, Detection (Chemical), Air, *Colorimetric analysis, Chemical indicators.

Moser, Ludwig and Singer, Josef.
CONCERNING THREE NEW GRAVIMETRIC DETERMINATIONS FOR BERYLLIUM, AND SEPARATIONS BASED THEREON. [Rept.] 10 of the Determination and the Separation of the Rare Metals from Other Metals. [1962] 27p. 20 refs.
Order from SLA $2.60 62-18304

Trans of Monatshefte für Chemie (Austria) 1927, v. 48, p. 673-687.

DESCRIPTORS: *Beryllium, Separation, Gravimetric analysis, Beryllium compounds, Oxides.

Moser, Ludwig and Niessner, Moritz.
THE QUANTITATIVE SEPARATION OF BERYLLIUM FROM ALUMINUM. [Rept.] 9 of The Determination and Separation of Rare Metals from Other Metals. [1962] [17]p. 30 refs.
Order from SLA $1.60 62-18305

Trans. of Monatshefte für Chemie (Austria) 1927, v. 48, p. 113-121.

DESCRIPTORS: *Beryllium, *Aluminum, Separation, Quantitative analysis.

Muzychenko, V. P. and Solov'eva, N. V.
METHOD OF DETERMINING PHOSPHORUS IN ADDITIVES AND ADDITIVE OILS. [1962] 6p.
Order from ATS $7.25 ATS-63P65R

Trans. of Khim[iya] i Tekhnol[ogiya] Topliv i Masel (USSR) 1962, v. 7, no. 6, p. 61-64.

DESCRIPTORS: *Phosphorus, Determination, *Additives, *Oils.

Nemodruk, A. A. and others.
2,7-BIS-(4-CHLORO-2-PHOSPHONOBENZENEAZO) -1, 8-DIHYDRO-XYNAPHTHALENE-3, 6-DISULFONIC ACID (CHLOROPHOSPHONOAZO) III, A NEW REAGENT FOR THE PHOTOMETRIC DETERMINATION OF URANIUM. [1962] 6p.
Order from OTS or SLA $1.10 62-18389

Trans. of #Zhurnal Analiticheskoi Khimii (USSR) 1961, v. 16 [no. 2] p. 180-184

DESCRIPTORS: *Uranium, Colorimetric analysis, Reagents, *Chemical indicators, Chlorine compounds, Phosphonyl radicals, *Azo compounds, Synthesis, Zirconium alloys, Naphthalenes, Benzenes.

A new highly sensitive reagent for the photometric determination of uranium (VI) - chlorophosphonazo III has been suggested. The molar absorptivity for the solutions of the uranium-reagent compound at 670 mμ is 78600. Due to the high stability of the colored compound formed, it is possible to determine uranium (VI) in the presence of large quantities of fluorides, phosphates and oxalates. Sulphates, tartrates and ethylenediaminetetra-acetic acid do not interfere in any quantities. A method has been worked out for the direct photometric determination of uranium in its alloys with zirconium using Na_2SiF_6 to eliminate the interference of zirconium. The synthesis of chlorophosphonazo III is described. (Author)

Obtemperanskaya, S. I., Terent'ev, A. P., and Buzlanova, M. M.
THE QUANTITATIVE DETERMINATION OF THIOALCOHOLS AND THIOPHENOLS. 10 July 62 [5]p. 8 refs.
Order from OTS or SLA $1.10 62-18974

Trans. of Moscow U. Vestnik. Ser[iya] Mat[ematiki] Mekh[aniki] Astron[omii] Fiz[iki] Khim[ii] (USSR) 1957, v. 12, no. 3, p. 145-147.

DESCRIPTORS: *Quantative analysis, *Thio radicals, *Alcohols, *Phenols, Dioxides, Ethylenes, Heterocyclic compounds, Acrylonitriles.

A new method for the analysis of thioalcohols and thiophenols, based on the cyanoethylation reaction is presented. Which is as accurate as the iodometric method. It was found that if a sample of a compound containing a mercapto group is treated with excess acrylonitrile, the reaction goes quantitatively to completion without a catalyst. For thiophenols and lower thioalcohols, the reaction is complete in 1-2 minutes, for higher thioalcohols in one hour. This new method of determination is based on the treatment of the thioalcohol or thiophenol sample with a known amount of a dioxane solution of acrylonitrile, and determination of excess acrylonitrile. The error in the determination is 0.3%. (Author)

Onishi, Isao, Yamamoto, K., and Shimitu, R.
STUDIES ON THE EXTRACTION OF TOBACCO CONSTITUENTS WITH FREON, PT. 2. [1962] 9p.
Order from K-H- $11.25 K-H 11436 c

Trans. of [Nihon Senbai Kosha Chuo Kenkyusho Kenkyu Hokoku] (Japan) 1954, no. 90, p. 39-43.

DESCRIPTORS: Separation, *Tobacco, Chemical analysis

Pakhomov, E. and Kolodyaznaya, O.
THE METHODS OF DETERMINING POTASSIUM IN TOBACCO. [1962] 20p.
Order from K-H $25.00 K-H-5461-d

Trans. of [Vsesoyuznyi Nauchno-Issledovatel'skii Institut Tabachnoi i Makhorkovoi Promyshlennosti. Trudy] (USSR) [1931] v. 81, p. 103-111.

DESCRIPTORS: Determination, *Potassium, *Tobacco, Chemical analysis.

Paris, M. R. and Cornilleau, J.
CHARACTERIZATION AND DETERMINATION OF FLAVONIC DERIVATIVES. [1962] 12p.
Order from K-H $15.00 K-H 3821 b

Trans. of Ann[ales] Pharm[aceutiques] Franç[aises] 1955, v. 13, p. 192-199.

DESCRIPTORS: Determination, *Flavones, *Chemical analysis.

Pyantnitskii, M. P.
CHEMICAL CHARACTERISTICS OF THE IRRIGATED AMERICAN-TYPE TOBACCOS OF CRIMEA. [1962] 31p.
Order from K-H $38.75 K-H-5454

Trans. of [Vsesoyuznyi Nauchno-Issledovatel'skii Institut Tabachnoi i Makhorkovoi Promyshlennosti. Trudy] (USSR) 1929, v. 49, p. 83-98.

DESCRIPTORS: *Tobacco, *Chemical properties, Chemical analysis.

Reihlen, Hans.
HYDROXYCARBOXYLIC ACIDS AS COMPLEX FORMING AGENTS. I. COPPER-ALKALI-TARTRATE AND THE SCHWEITZER'S REAGENT. [1955] 8p.
Order from SLA $1.10 62-16536

Trans. of Zeitschrift für Anorganische Chemie (East Germany) 1948, v. 257, p. 340-348.

DESCRIPTORS: Chemical analysis, *Tartrates, Succinic acids, Phenols, *Hydroxides, Solubility, *Cellulose, Copper, *Carboxylic acids, Reagents.

Robert, L. and Favre, J.
INFRA-RED SPECTROMETER IN ANALYSIS OF MINERAL OILS AND GREASES. [1962] 11p.
Order from K-H $13.75 K-H 3759 c

Trans. of Rev[ue de l'][Institut] Franç[ais du] Petrole [et Annales des Combustibles Liquides] 1955, v. 10, p. 164-169.

DESCRIPTORS: *Infrared spectroscopy, Analysis, *Oils, *Greases, *Mineral oils.

Volkova, A. I. and Zakharova, N. N.
DETERMINATION OF MICRO-QUANTITIES OF LEAD IN METALLIC INDIUM. [1959] 4p. 6 refs.
MDF V-133.
Order from OTS $0.50 62-11614

Trans. of Ukr[ainskii] Khim[icheskii] Zh[urnal] (USSR) 1957, v. 23, no. 4, p. 530-532.

DESCRIPTORS: *Lead, Determination, Indium, *Microvolumeteric analysis.

A method is proposed for the determination of microquantities of lead in metallic indium. The method is

based on producing analytic concentrates of lead by using double co-deposition of lead with a barium chromate collector. The quantitative determination of lead is made with dithizone with pH of 8 to 8.5. The sensitivity of the method is 3 to 5 μg of lead per 0.1 g indium. The time to perform the analysis is 5 hours.

Wahl, R.
THE CHEMISTRY OF PECTINS AND THE OCCURRENCE OF PECTIN IN TOBACCO. [1962] 11p.
Order from K-H $13.75 K-H 3180 f

Trans. of Tabak-Forschung (West Germany) 1950, v. 4[p. 31-32].

DESCRIPTORS: *Tobacco, *Pectins, Detection, Chemistry.

Wegner, Erich.
THE MAIN ALKALOIDS OF FERMENTED TOBACCO. [1962] 7p.
Order from K-H $8.75 K-H 3625

Trans. of Tabak-Forsch[ung] (West Germany) 1953 [v. 10] July, Sonderheft p. 20-22.

DESCRIPTORS: *Tobacco, Fermentation, *Alkaloids.

Zapol'skii, V. V.
QUANTITATIVE SEPARATION OF AMMONIA FROM NICOTINE. [1962] 10p.
Order from K-H $12.50 K-H-5461-g

Trans. of [Vsesoyuznyi Nauchno-Issledovatel'skii Institut Tabachnoi i Makhorkovoi Promyshlennosti. Trudy] (USSR) 1931, v. 81, p. 87-92.

DESCRIPTORS: Separation, Chemical analysis, *Nicotine, *Ammonia.

Zechmeister, L., Cholnoky, L., and Ujhelyi, E.
CONTRIBUTION TO THE CHROMATOGRAPHY OF COLORLESS SUBSTANCES. [1962] 4p.
Order from K-H $5.00 K-H 3614 d

Trans. of Soc[iété de] Chim[ie] Biol[ogique]. Bull[etin] (France) 1936, v. 18, p. 1885-1887.

DESCRIPTORS: *Chromatographic analysis, Chemicals.

Zhukhovitskii, A. A.
THE THEORY OF GAS CHROMATOGRAPHY, tr. by A. G. Hamlin. [1962] 15p. 19 refs. UKAEA DEG-Inf. Ser. 162(CA)
Order from OTS or SLA $1.60 62-32046

Trans. of Uspekhi Khimii (USSR) 1959 [v. 28] no. 10, p. 1201-1215.

DESCRIPTORS: *Gas chromatography, Theory.

Inorganic Chemistry

JOURNAL OF INORGANIC CHEMISTRY, 1956, VOL. 1, NO. 3. 1962, 284p. refs. PL-480 AEC.
Order from OTS $3.75 AEC-tr-4584

Trans. of Zhurnal Neorganicheskoi Khimii (USSR) 1956, v. 1, no. 3, p. 353-605.

DESCRIPTORS: *Inorganic substances, *Chemistry, *Acetic acids, Esters, *Mercury alloys, *Calcium compounds, Fluorides, *Cerium compounds, Chlorides, *Chromium compounds, *Cobalt compounds, *Complex compounds, *Copper compounds, Hydrazines, Thiocyanates, Carbamides, Sulfates, Carbazides, Valence, Salts, *Magnetic susceptibility, *Ammino compounds, *Oximes, *Iron compounds, Sulfides, *Formic acids, Labelled substances, *Lead compounds, *Nepheline, *Nickel, Oxidation-reduction reactions, *Phosphoric acids, *Phosphorus, Oxygen compounds, *Platinum compounds, *Polonium, Sorption, *Potassium compounds, Tungstates, Ferrates, *Sea water, *Sodium compounds, Fluorides, Beryllium compounds, *Sulfuric acid, *Thorium compounds, Phosphates, *Titanium compounds, *Tungsten compounds, Vapor pressure, Thermodynamics, *Uranyl radicals, Solubility, *Urea, *Yttrium compounds, Titanates, Zirconium compounds, Iodates.

Contents:
Yakov Anatol'evich Fyalkov (on the occasion of his 60th birthday) by I. A. Sheka
Thermodynamic investigation of certain chlorine derivatives of Tungsten, by S. A. Shchukarev and G. I. Novikov
Reduction of cerium trichloride by hydrogen, by S. A. Shchukarev and G. I. Novikov
Synthesis and properties of yttrium orthotitanite, by E. I. Krylov
Chemistry of oxygen phosphorus compounds in the light of the structural theory, by Yu. V. Khodakov
The action of liquid amalgams on perrhenates, by A. I. Lazarev
The influence of the nature of an acid on the composition of freshly precipitated zirconium iodates, by M. I. Konarev and others
New methods for the synthesis of tetrammine chloride and trans-diammine chloride complexes of platinum, by Kh. I. Gil'dengershel'
The valency of copper in some of its complex compounds, by V. N. Podchainova and others
Some functions characteristic of consecutive complex formation in solutions, by K. B. Yatsimirskii
The composition and stability of the tartratolead complex ions, by V. E. Panova
Determination of the instability constants of potassium trioxalatoferriate by the method of displaced equilibrium, by L. I. Vinogradova and B. V. Ptitsyn
Determination of instability constants of potassium Trioxalatoferriates by means of the reaction between an iron salt and silver oxalate, by L. I. Vinogradova and B. V. Ptitsyn
Kinetics and mechanism of the reaction of formation of urea complex compound of tervalent chromium, by K. B. Yatsimirskii and E. I. Yasinskenc

Studies on dehydration and thermal decomposition of potassium silicontungstate. by Vikt. I. Spitsyn and I. D. Kolli

Dehydration of sodium paratungstate, by I. D. Kolli and others

Dehydration of sodium metatungstate, by I. D. Kolli and others

Solubility of uranyl and thorium phosphates, by V. G. Chukhlantsev and S. I. Stepanov

Nature of the soluble complex formed during the reaction between nickel, dimethylglyoxine and an oxidizing agent, by A. K. Babko

Formation of sulfides by the reaction of ferrous sulfide with oxides of metals, by Zh. L. Vert and M. V. Kamentsev

Determination of the solubility of calcium fluoride and calcium fluoroberyllate in water and in hydrochloric acid solutions by the tracer atom method, by L. M. Mikheeva and others

Acidity function of the H_2SO_4 - H_2O system at various temperatures, by A. I. Gel'bshtein and others

The system NaF -BeF_2 - H_2O, by O. I. Vorob'eva and others

Thermal analysis of sea water, by V. M. Levchenko

Reaction of nepheline with phosphoric acid, by V. N. Sveshnikova and M. N. Lyashenko

Physicochemical investigation of the reaction of titanium tetrachloride with esters of monobasic acids, by Yu. A. Lysenko and others

Criteria for appearance of limiting points on isotherms on passing from molecular to specific property isotherms and vice versa, by N. L. Yarym - Agaev

Use of labeled atoms in studies on the structure of some aquopoly and heteropoly compounds, by V. I. Spitsyn

Study of the reaction of isotope exchange in solutions of green modifications of chromium salts, by Ya. A. Fialkov and Yu. P. Nazarenko

Use of organic coprecipitating agents for the study of the mechanism of reactions in very dilute solutions, by V. I. Kuznetsov and G. V. Myasoedova

A study of the reaction of formation of cobalt xanthate, by Z. A. Sheka and E. E. Kriss

Sorption of polonium by Glass, by I. E. Starik and N. G. Rozovskaya

JOURNAL OF INORGANIC CHEMISTRY, 1956, VOL. 1 NO. 5. 1962, 273p. refs. PL-480 AEC.
Order from OTS $3.75 AEC-tr-4586

Trans. of Zhurnal Neorganicheskoi Khimii (USSR) 1956 v. 1, no. 5, p. 881-1125.

DESCRIPTORS: *Inorganic compounds, *Chemistry, *Periodical, Absorption spectra, Alloys, Copper, Gold Cobalt, Palladium, Aluminum compounds, Bromides, Ammonium compounds, Niobium compounds, Tantalum compounds, Sulfates, Quantitative analysis, Antimony compounds, Arsenic compounds, Sulfides, Beryllium compounds, Chlorates, Acetates, Propionic acids, Boron compounds, Hydrides, Chlorides, Chromatographic analysis, Radiochemistry, Chromium, Anhydrides, Complex compounds, Chemical precipitation, Electrolytes, Diboranes, Electrochemistry, Cyanides, Radioactive isotopes, Oxalates, Platinum compounds, Amines, Mercury compounds, Thiourea, Molybdenum, Potassium compounds, Pyridines, Quinolines, Colloids, Salicylic acids, Sodium compounds, Molybdates, Tungstates, Tantalum, Thermochemistry, Thermocouples, Tin compounds, Zirconium compounds.

Contents:

Thermal dissociation of gold chlorides, by S. A. Shchukarev and others

Beryllium oxymonochloroacetate, by A. V. Novoselova and K. N. Semenenko

Heat of solution and lattice energy of bivalent platinum tetrammines, by I. I. Chernyaev and V. A. Palkin

Complex compounds of boron hydrides with nitrogen-containing organic bases, by V. I. Mikheeva and E. M. Fedneva

Niobium sulfates, by Ya. G. Goroshchenko

Double salts of niobium sulfate with ammonium sulfate, by Ya. G. Goroshchenko

Studies on the double salts of tantalum and ammonium sulfates, by Ya. G. Goroshchenko

The electronic absorption spectra of complex compounds in the crystalline state, by A. V. Babaeva and R. I. Rudyi

Stability of thiourea complex compounds of mercury, by V. F. Toropova

Cryoscopic study of several complex compounds of aluminum bromide in nitrobenzene, by N. S. Bigich

An electrochemical method of preparation of heteropoly compounds, by V. I. Spitsyn and K. G. Koneva

The kinetic study of oxalate and phosphate complexes of molybdenum, by K. B. Yatsimirskii and I. I. Alekseeva

A study of the mechanism of reaction of salicylic acid with salts of certain metals, in the presence of sodium nitrite, by L. M. Kul'berg and A. G. Kovaleva

The compounds of zirconium tetrachloride with phosphorus oxychloride, by I. A. Sheka and B. A. Voitovich

Equilibrium in reactions of formation of thiosalts of tin, antimony, and arsenic in solution, by A. K. Babko and G. S. Lisetskaya

The problem of the solubility of $Cs(PbCH_3COO_2)[Fe(CN)_6]$ in water-alcohol mixtures, by I. V Tananaev and G. B. Seifer

Thermochemical studies of solutions of chromium anhydride in sulfuric acid, by K. B. Yatsimirskii and V. N. Vasil'eva

A study of equilibria in the system K_2SO_4-Na_2SO_4-$MgSO_4$-H_2O at 55°, by O. K. Yanat'eva and V. T. Orlova

A study of solubility in the system K_2SO_4-$MgSO_4$-$CaSO_4$-H_2O at 55°, by N. V. Bodaleva and I. N. Lepeshkov

A physiochemical investigation of the system $NiSO_4$-$C_6H_5O_7Na_3$ in aqueous medium, by P. K. Migal' and A. Ya. Sychev

Studies of interaction of alkali and alkaline-earth metal chlorides in melts. IV. Ternary system composed of lithium, potassium and calcium chlorides, by V. E. Plyushchev and F. V. Kovalev

The ternary system of the chlorides of lithium, sodium, and potassium, by E. K. Akopov

Interaction between the titanates and molybdates of potassium and lead in melts, by I. N. Belyaev and others

The ternary system of the sodium, potassium, and cadmium sulfates, by E. L. Bakumskaya, and A. G. Bergman

Reactions of salts with metals in melts. Interaction in the system $CdCl_2 + Zn \rightarrow ZnCl_2 + Cd$, by E. I. Elagina, and A. P. Palkin

Study of alloys of the system gold-cobalt, by A. T. Grigor'ev and others

Investigations of the system palladium-gold-cobalt, by A. T. Grigor'ev, and others

Investigation of the system copper-cobalt, by A. T. Grigor'ev, and others

Investigations of the system palladium-copper-cobalt, by A. T. Grigor'ev and others
The investigation and choice of alloys for high-temperature thermocouples, by A. A. Rudnitskii and I. I. Tyurin
Methods of separation of radioactive isotopes using complex formation, by N. P. Rudenko
The use of coprecipitation for the isolation of trace amounts of various metals, by K. V. Troitskii
Extraction of mercuric chloride with solvent mixtures, by V. I. Kuznetsov and E. V. Mitrofanova
Synthesis and investigation of borates in aqueous solutions: book review by A. V. Nikolaev (compendium of works of A. D. Keshan)
Ukrainian Republic Conference on Inorganic Chemistry (no. 2) Kiev, Dec 55, by I. A. Sheka.

JOURNAL OF INORGANIC CHEMISTRY, 1956, VOL. 1, NO. 6. 1962, 368p. refs. PL-480 AEC.
Order from OTS $3.75 AEC-tr-4587

Trans. of Zhurnal Neorganicheskoi Khimii (USSR) 1956, v. 1, no. 6, p. 1129-1454.

DESCRIPTORS: *Inorganic compounds, *Chemistry, *Periodicals, Adsorption, Alkali metals, Alloys, Ferromagnetic materials, Hydrocarbons, Mass spectroscopy, Antimony compounds, Lead compounds, Oxides, Atomic structure, Crystal structure, Bismuth compounds, Rhodium, Cesium compounds, Cobalt alloys, Palladium alloys, Copper alloys, Nickel alloys, Hydroxides, Complex compounds, Conferences, Physical chemistry, Dilatometers, Electrical conductance, Ferroelectricity, Liquids, Glass, Hydrates, Manganese compounds, Neutron diffraction analysis, Microanalysis, Phase studies, Quartz, Tin compounds, Zirconium compounds, Dioxides, Water, Barium compounds, Zirconates, Tellurium.

Contents:
Fundamental problems of the contemporary theory of solutions, by V. K. Semenchenko
Daltonides and berthollides in the light of the atomic theory of crystal structure, by G. B. Bokii
Physicochemical study of molecular compounds in solutions by the measurement of the refractive indexes, by N. F. Ermolenko, and Kh. Ya Levitman
Form of the extensive property isotherm referred to unit quantity of substance (quasi-intensive property) by N. L. Yarm-Agaev
Differential thermal study of complex formation in the system urea-n-paraffin, by A. V. Topchiev, and others
The structure of solutions, by M. I. Shakhparonov
Structures of dilute aqueous solutions of electrolytes and hydration of ions, by O. Ya. Samoilov
Theory of separation of liquids, by I. I. Krupatkin
The problem of the dissociation of the double salts KCl $ZnSO_4$, KBr $ZnSO_4$, PbF_2 $PbCl_2$, and KCl $MgCl_2$ on Melting, by V. Ya. Anosov, and N. N. Patsukova
Complex formation in aqueous solutions of sulfuric acid and some metal sulfates, by Ya. A. Fialkov, and Z. A. Sheka
Spectrophotometry as a means of physicochemical analysis of solutions, by N. P. Komar'
Inorganic oxonium compounds, by N. V. Shishkin, and E. A. Krogius
Investigation of diffusion in binary alloys as a new method of physicochemical analysis, by M. B. Neiman, and A. Ya. Shinyaev
Mass-spectral analysis of hydrocarbon systems, by K. I. Zimina, and others
Electrodeless method of measuring electrical conductivity and possibilities of its use in physicochemical analysis, by A. R. Regel'
A kinetic method for determination of solubility, by A. B. Zdanovskii
The interpretation of the nature of thermal effects in heating curves, by I. S. Rassonskaya
The use of complex thermal analysis in physicochemical and technical studies, by E. K. Keler, and A. K. Kuznetsov
Development and application of new geometrical methods in hydrochemistry, by S. A. Durov
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An optical method for the determination of the thermal conductivity of liquids and its use in physicochemical analysis, by V. P. Frontas'ev
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Physicochemical theory of plasticity, by S. I. Gubkin
Dilatometry of solids and some of its applications, by P. G. Strelkov
Opening address at the session of the metals section of the third all-union conference on physicochemical analysis, by N. V. Ageev
Some characteristics of the variation of galvanomagnetic properties related to the composition of alloys, by N. V. Grum-Grzhimailo
The significance of physicochemical analysis in the chemistry of metals, by I. I. Kornilov
Certain properties of surface-active metals, by N. L. Pokrovskii
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Physicochemical studies on the interaction of lead oxide with tin and antimony oxides, by G. G. Urazov, and others
Interaction of lead oxide with antimony oxides, by G. G. Urazov, and E. I. Speranskaya
A physicochemical study of metal oxides and hydroxides, by E. Ya. Rode
Investigation of the System Ni--S (From 30.0 to 50.0 at. % S) by M. A. Sokolova

JOURNAL OF INORGANIC CHEMISTRY, 1956, VOL. 1, NO. 8. 1962, 258p. refs. PL-480 AEC.
Order from OTS $3.75 AEC-tr-4589

Trans. of Zhurnal Neorganicheskoi Khimii (USSR) 1956, v. 1, no. 8, p. 1697-1934.

DESCRIPTORS: *Inorganic compounds, *Chemistry, *Periodicals, Niobium, Zirconium, Radioactive isotopes, Adsorption, Aluminum compounds, Perchlorates, Calcium compounds, Beryllium compounds, Magnesium compounds, Barium compounds, Sodium compounds, Strontium compounds, Niobates, Tungstates, Bromine, Chromium compounds, Bromides, Chlorides, Cobalt

compounds, Phosphates, Complex compounds, Titration, Copper compounds, Amines, Propionic acids, Ethyl radicals, Methyl radicals, Platinum, Chemical equilibrium, Gallium compounds, Hafnium compounds, Dehydration, Hydrazines, Carboxylic acids, Ion exchange, Iron, Lead, Hydroxides, Nitric acid, Nitrates, Oxides, Thorium compounds, Tungsten compounds, Polarographic analysis, Potassium compounds, Iron compounds, Cyanides, Radiochemistry, Silver compounds, Thermochemistry, Viscosimeters, Zinc.

Contents:

The thermal dissociation of chromium bromide and chromium chloride, by S. A. Shchukarev and others

Determination of stability constants of $Th(NO_3)_x^{4-x}$ ions by means of tributyl phosphate extraction, by V. V. Fomin, and E. P. Maiorova

The oxides of tungsten, by I. I. Berger, and others

The utilization of a polarographic cell for the determination of the pH at the commencement of the precipitation of manganese hydroxide and of its solubility product, by P. N. Kovalenko

Thermal decomposition of the perchlorates of magnesium, calcium, barium, and aluminum, by A. A. Zinov'ev, and L. I. Chudinova

Complex compounds of bivalent cobalt with hydrazine and hydrazinecarboxylic acid, by P. V. Gogorishvili, and others

Some properties of copper d-alaninate, by Z. E. Gol'braikh,

Methods of synthesis of some diamines of bivalent platinum of the type $\begin{bmatrix} a \\ a \end{bmatrix}$ Pt $\begin{bmatrix} Cl \\ Cl \end{bmatrix}$ by Kh. I. Gil'dengershel'

The absorption of nitric oxide by aqueous ammoniacal solutions of salts of bivalent cobalt, by G. D. Sirotkin,

The determination of the composition of green chromic bromide by the argentometric method, by Yu. P. Nazarenko, and R. S. Khaimovich

The problem of the products of the reaction of tetrachlorides of zirconium and hafnium with phosphorus oxychloride, by L. A. Nisel'son, and B. N. Ivanov-Emin

A thermographic study of the reaction of niobium pentoxide with sodium hydroxide, by V. I. Spitsyn, and A. V. Lapitskii

Thermographic and X-ray studies on the processes of dehydration of sodium and potassium niobates, by A. V. Lapitskii, and others

Thermographic and X-ray studies of the dehydration of hexaniobates of some bivalent metals, by V. A. Pchelkin, and others

Studies on paratungstate ion transformations in solutions with the aid of a mixed sodium-cesium paratungstate salt, by V. I. Spitsyn, and E. A. Torchenkova

Studies on the mechanism of the reaction between sodium orthotungstate and 8-hydroxyquinoline hydrochloride in aqueous solutions by means of conductometric titration, by V. F. Degtyarev, and E. P. Darienko

Studies on the reaction between gallium chloride and tartaric acid and its sodium salts, by G. S. Savchenko, and E. V. Goncharov

A study of the formation of silver hydroxide, by I. V. Tananaev, and N. V. Mzareulishvili

Reactions of salts with molten metals: Reaction of CuCl with zinc, by A. P. Palkin, and G. P. Chepurko

Reaction of thorium oxide with its chloride in salt melts, by M. V. Smirnov, and L. E. Ivanovskii

The binary system of sodium perchlorate - barium perchlorate, by A. A. Zinov'ev, and others

Viscosity and static shearing stress in alkaline melts containing sodium antimonate or arsenate, by G. G. Urazov, and others

Thermal stability of a low-melting mixture of nitrites and nitrates of sodium and potassium, by N. K. Voskresenskaya, and S. I. Berul'.

Study of complex formation in ternary system solutions by physiochemical methods. VI. System $AlBr_3$-$C_6H_5NO_2$ - C_2H_5Br, by E. Ya. Gorenbein

The mutual solubility in the system ammonium dichromate-ammonium sulfate - water, by A. D. Sheveleva

The solubility isotherm of the quaternary system Na_2SO_4 - $ZnSO_4$ $(NH_4)_2SO_4$ - H_2O at 35°, by V. G. Shevchuk, and I. N. Lepeshkov

Studies on the state of radioactive niobium in nitric acid solutions by means of ion exchange and dialysis, by V. I. Paramonova, and V. B. Kolychev

Ion exchange study of the state of zirconium in sulfuric and nitric acid solutions, by V. I. Paramonova, and A. S. Voevodskii

Isotopic exchange of iron atoms in prussian blue, by I. A. Korshunov, and Z. M. Lebedeva

Studies on the solubility of cobalt pyrophosphate in water, hydrochloric acid, sulfuric acid and in sodium pyrophosphate solutions, by F. M. Filinov, and V. F. Budanova

The determination of the solubility of scheelite ($CaWO_4$) in water and in aqueous solutions of NaCl and LiCl by the radiochemical method, by G. B. Bokii, and I. N. Anikin

A contribution to the problem of the preparation of phosphorus tribromide, by G. V. Medoks, and L. A. Maslova

Hafnium: collection of articles, ed. by L. N. Komissarova: book review by E. I. Gurovich

Hydrogen peroxide, by W. Schumb and others: book review by I. I. Vol'nov

JOURNAL OF INORGANIC CHEMISTRY, 1956, VOL. 1, NO. 12. 1962, 211p. 298 refs. PL-480 AEC.
Order from OTS $3.75 AEC-tr-4593

Trans. of Zhurnal Neorganicheskii Khimii (USSR) 1956, v. 1, no. 12, p. 2649-2832.

DESCRIPTORS: *Inorganic substances, *Chemistry, *Uranium compounds, Chlorides, Disproportionation, Fractionation, *Beryllium compounds, Fluorides, *Tartrates, Silicates, *Rubidium compounds, *Borines, Amines, *Lithium compounds, Borohydrides, Ammoniun compounds, *Zinc compounds, Peroxides, *Chromium compounds, Nitrates, *Cobalt compounds, Nitrites, *Uranyl radicals, Carbonates, *Complex compounds, *Thorium compounds, *Hydrazines, *Platinum compounds, *Zirconium compounds, *Hafnium compounds, *Phthalates, *Molybdenum compounds, Oxides, *Niobium compounds, *Tantalum compounds, *Iron compounds, Salts, Crystallization, *Copper compounds, Solubility.

Contents:

B. A. Muromtsev: obituary, by O. E. Zvyagintsev

The disproportionation of uranium trichloride, by S. A. Shchukarev and others

Separation and purification of elements by fractional distillation. I. Separation of zirconium and hafnium by fractional distillation of the products resulting from the

reaction of their tetrachlorides with phosphorus oxychloride, by L. A. Nisel'son
Investigation of quartzlike beryllium fluoride, by A. V Novoselova and others
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Crystal structure similarity of rubidium fluoroberyllates and barium silicates, by N. A. Toropov, and R. G. Grebenshchikov
Synthesis of borazole by the reaction between lithium borohydride and ammonium chloride, by V. I. Mikheeva, and V. Yu. Markina
Synthesis of zinc peroxide, by S. V. Makarov, and L. V. Ladeinova
Nitrates of tervalent chromium, by A. V. Pamfilov and others
Solid state transformations of cobaltammine nitrites on heating. II. Transformations of diethylenediaminediamminecobalt (III) and nitrodiethylenediamineamminecobalt (III) salts, by A. V. Ablov and others
Uranyl aquocarbonate compounds. V. Synthesis of UO_2CO_3 and $UO_2CO_3 \cdot H_2O$, by I. I. Chernyaev and others
Complex compounds of sexivalent uranium with some some organic substances. I. Chelate uranium compounds with some schiff bases, by I. A. Savich, and others
Complex compounds of sexivalent uranium with some organic compounds. II. Chelate salts of the uranyl ion and some derivates of 2-naphthol and 1, 2-naphthoquinone, by I. A. Savich and others
Complex compounds of sexivalent uranium with some organic compounds. III. Uranium precipitation from aqueous solutions by some compounds related to 1-nitroso-2-naphthol, by I. A. Savich and others
Determination of stability constants of $Th(NO_3)_j^{4-j}$. II. Experiments with macroquantities of thorium, by V. V. Fomin, and E. P. Maiorova
Action of hydrazine on chloropentamminecobalt (III) chloride in the presence of CO_2, by P. V. Gogorishvili, and others
The effect of hydrazine and its salts on compounds of quadrivalent platinum, by R. N. Savel'eva, and N. G. Klyuchnikov
Reduction of chloroplatinates to chloroplatinites by hydrazine hydrate and its salts, by N. G. Klyuchnikov, and R. N. Savel'eva
Composition of zirconium and hafnium phthalates, by I. A. Sheka, and Ts. V. Pevzner
Comparative studies on the stability of complex compounds by a chromatographic method. I. by M. M. Senyavin, and L. I. Tikhonova
Reactions in the solid phase with the participation of molybdenum trioxide, by A. P. Zelikman
Reaction between niobium and tantalum pentachlorides, and ferric and aluminum chlorides, by I. S. Morozov
Classification of phase diagrams of systems containing two isomorphous salts, by S. K. Chirkov
Paths of crystallization of isomorphous salt mixtures from aqueous solutions, by S. K. Chirkov
Studies on the crystallization of sparingly soluble salts. I. Crystallization of strontium sulfate from solutions supersaturated to different degrees, by N. A. Figurovskii, and T. A. Komarova
Solubility diagrams of the ternary systems $CuCl_2$-LiCl-H_2O and $CuCl_2$-$ThCl_4$-H_2O, by V. P. Blidin
The metallurgy of zirconium ed. by B. Lustman and F. Kerze: book review by E. I. Gurovich.

Levchenko, V. M. and Bekman, V. V.
EXPERIMENTAL DATA ON THE SOLUBILITY OF CALCIUM CARBONATE IN AQUEOUS SOLUTIONS. [1962] 4p.
Order from ATS $5.00 ATS-04P65R

Trans. of Akad[emiya] Nauk SSSR. Dokl[ady] 1962, v. 144, no. 6, p. 1366-1368.

DESCRIPTORS: *Calcium compounds, *Carbonates, Solubility, Solutions, Water.

Möser, L. and Eidmann, W.
INFORMATION ON BORON NITRIDE. [1962] 5p. 8 refs.
Order from SLA $1.10 62-18266

Trans. of [Chemische Berichte] (Germany) 1902, v. 35, p. 535-539.
Another trans. is available from SLA as no. 02348, 4p

DESCRIPTORS: *Boron compounds, *Nitrides, Preparation, Chemical reactions.

Samsonov, G. V., Zhuravlev, N. N. and others.
ON THE INTERACTION OF GALLIUM, INDIUM, THALLIUM, GERMANIUM, TIN AND LEAD WITH BORON. [1961] 8p. 10 refs. MDF S-180.
Order from OTS $0.50 62-11471

Trans. of Zh[urnal] Strukt[urnoi] Khimii (USSR) 1960, v. 1, no. 4, p. 458-463.

DESCRIPTORS: *Boron, Chemical reactions, *Group III elements, Gallium, Indium, Thallium, *Group IV elements, Germanium, Tin, Lead, Borides, Valence, Ionization potentials.

Results are presented of the investigation of the character of the interaction of gallium, indium, thallium germanium, tin and lead with boron, which shows the impossibility of producting borides of these elements as well as of solid solutions of boron in them. An explanation is given for the absence of some interaction of elements of the IIIB and IVB groups of the periodic system with boron by starting from the population of the inner electron shells and from the high values of the ionization potentials of the atoms of these elements. (Author)

Shchukarev, S. A., Morozova, M. P., and Prokof'eva, E. A.
HIGHER PHOSPHIDES OF BARIUM. [1961] 3p. 3 refs. MDF S-126.
Order from OTS $0.50 62-11384

Trans. of Zh[urnal] Obshchei Khim[ii] (USSR) 1954, v. 24, no. 8, p. 1277-1278.

DESCRIPTORS: *Barium compounds, *Phosphides, Chemical analysis, X-ray diffraction analysis, Enthalpy.

The existence of the compound BaP_2 in the barium-phosphorus system has been established. The existence of BaP_3 also has not been eliminated. In conformance with the foresight based on the isoatom method, an increase in the strength of the per-compound has been established when the transition is made from nitrogen to phosphorus. (Author)

Abramov, V. S.
STRUCTURE AND REACTIVITY OF DIALKYL PHOSPHONATES. [1962] 8p.
Order from ATS $10.75 ATS-82P63R

Trans. of mono. Khim[iya] I Primenenie Fosfororganicheskikh Soedin[enii] (Akad. Nauk SSSR, Kazansk. Filial, tr. Konf. (no. 2) 1959) [Moscow] 1962, p. 105-111.
A complete trans. of mono. is available from OTS or SLA $38.50 as 62-33349, JPRS-15432, 25 Sep 62 [1160]p.

DESCRIPTORS: *Phosphorus compounds, *Alkyl radicals, Molecular structure, Chemical reactions.

Anisonyan, A. A. and Volod'ko, N. P.
THE MECHANISM OF METHANE CONVERSION. [1962] 6p.
Order from ATS $8.00 ATS-86P65R

Trans. of Akad[emiya] Nauk SSSR. Dokl[ady] 1962, v. 145, no. 1, p. 140-143.

DESCRIPTORS: *Methanes, Production.

Bashkirov, A. N., Kagan, Yu. B., and Kliger, G. A.
A NEW SYNTHESIS OF ALIPHATIC AMINES (Novyi Sintez Alifaticheskikh Aminov). [1962] 3p. [Warren Spring Lab.] Trans. NT 637; DSIR NLL M. 4855.
Order from OTS or SLA $1.10 62-25379

Trans. of Akademiya Nauk SSSR. Doklady, 1956, v. 109, no. 4, p. 774-776.
Another trans. is available from ASLIB, 3 Belgrave Square, London S. W. 1, Eng. as GB73.

DESCRIPTORS: *Amines, Synthesis, Carbon compounds Monoxides, Hydrogen, Ammonia, Iron catalysts.

In order to carry out direct synthesis of alkylamines from carbon monoxide, hydrogen and ammonia, a gaseous mixture consisting of these components was passed over a promoted iron catalyst under varying conditions. (Author)

Eidus, Ya. T. and Gushva, I. V.
THE INTERACTION OF METHYL ALCOHOL AND ETHYL ALCOHOL WITH ETHYLENE. Pt. 9 on Catalytic Hydro-Condensation of Carbon Monoxide with Olefines. [1962] 9p. 11 refs. [Warren Spring Lab. Trans.] NT489; [DSIR] NLL M. 3627.
Order from OTS or SLA $1.10 62-25279

Trans. from #A[kademiya] N[auk] SSSR. Otdel[enie] Khim[icheskikh] Nauk. Izv[estiya] 1952, no. 6.

DESCRIPTORS: *Methanols, *Ethanols, Condensation reactions, *Ethylenes, Catalysis, Carbon compounds, Monoxides, Chemical reactions.

Ershov, N. I. and Eidus, Ya. I.
EXPERIMENTAL VERIFICATION OF THE CHAIN MECHANISM OF HYDROPOLYMERIZATION OF OLEFINS, A HETEROGENEOUS CATALYTIC REACTION PROCEEDING UNDER THE INFLUENCE OF CARBON MONOXIDE AND HYDROGEN [Eksperimental'noe Obosnovanie Tsepnogo Mekhanizma Geterogenno-Kataliticheskoi Reaktsii Gidropolimerizatsii Olefinov, Protekayushchei pod Vliyaniem Okisi Ugleroda i Vodoroda). [1962] [4]p. 11 refs. [Warren Spring Lab.] Trans. NT 663; DSIR NLL M. 3611.
Order from OTS or SLA $1.10 62-25286

Trans. of Akademiya Nauk SSSR. Doklady, 1957, v. 115, no. 6, p. 1126-1128.

DESCRIPTORS: *Ethylenes, *Propylenes, *Butenes, Polymerization, Catalysis, Carbon compounds, Monoxides, Hydrogen.
Experimental data is adduced to show that the hydropolymerization of olefins under the influence of carbon monoxide and hydrogen is a heterogeneous catalytic reaction with a radical-chain mechanism. It is suggested that the formation of hydrocarbons from carbon monoxide and hydrogen also has a radical-chain mechanism at a certain stage. Its initial stage has a radical mechanism (of hydrocondensation) in which olefins are formed. As the olefins accumulate on the surface of the catalyst, they begin to undergo hydropolymerization. The hydropolymerization has a chain mechanism and is complicated by a number of other reactions such as hydrocracking and hydrogenation. Formation of hydrocarbons proceeds by a complex combination of a radical and a radical-chain mechanism. In this light the hydropolymerization of olefins, which begins at the stage at which the olefin is introduced, can be regarded as the concluding part of the complex reaction of forming hydrocarbons from carbon monoxide and hydrogen. (Fuel Abstracts, 1958, vol. 23, 2519).

Eucken, A.
BASIC PRINCIPLES OF THE DECOMPOSITION MECHANISM OF SIMPLE HYDROCARBONS. [1962] 18p. 2 refs.
Order from SLA $1.60 62-18164

Trans. of Deutsche Akademie der Luftfahrtforschung. Schriften (Germany) 1939, no. 9, p. 93-115.

DESCRIPTORS: *Hydrocarbons, Methanes, Ethanes, Cyclohexenes, Cyclohexanes, Decomposition, Reaction kinetics.

Gal'pern, G. D.
NOTES ON SYNTHESIS OF INDIVIDUAL HYDROCARBONS. IV. PREPARATION OF CYCLOPENTYLPENTANE FROM METHYLPROPYLFULVENE. [1962] [3]p. 3 refs.
Order from OTS or SLA $1.10 62-16785

Abstract trans. of Akademiya Nauk SSSR. Otdelenie Khimicheskikh Nauk. Izvestiya, 1943, no. 5, p. 397-399.

DESCRIPTORS: *Hydrocarbons, *Cyclopentanes, *Pentyl radicals, Synthesis.

(See also 61-16910)

Ginsburg, V. A., Yakubovich, A. Ya. and others.
HETEROLYTIC CONVERSIONS OF POLYFLUORINATED AZOALKANES. 5 Sep 62 [8]p. 3 refs.
FTD-TT-62-1070; AD-287 716.
Order from OTS or SLA $1.10 63-13181

Unedited rough draft trans. of Akademiya Nauk SSSR. Doklady, 1962, v. 142, no. 2, p. 354-357.
Another trans. is available from OTS or SLA $1.10 as 62-14994, 4 Apr 62 [7]p.

DESCRIPTORS: Polymers, Fluorides, *Fluorination, *Azo compounds, Methanes, Benzenes, Carboxylic acids, Decomposition, Chemical reactions, Synthesis.

Golovina, O. A., Dokukina, E. S. and others.
ROLE OF PLANAR (REACTION) CHAINS IN THE SYNTHESIS OF HYDROCARBONS FROM CARBON MONOXIDE AND HYDROGEN (Issledovanie Roli Ploskikh Tsepei v Sinteze Uglevodorodov iz CO I H_2). [1962] 6p. 15 refs. [Warren Spring Lab.] Trans.
NT634; DSIR [NLL] M. 4856.
Order from OTS or SLA $1.10 62-25380

Trans. of Akad[emiya] Nauk SSSR. Dokl[ady] 1957, v. 112, no. 5, p. 864-867.
Another trans. is available from ASLIB, 3 Belgrave Square, London S.W.1, Eng. as GB73.

DESCRIPTORS: *Hydrocarbons, Synthesis, *Carbon compounds, *Monoxides, *Hydrogen, Ethylenes, Labeled substances, *Cobalt catalysts, Thorium compounds.

Experiments on the synthesis of hydrocarbons from CO and H_2 with the addition of ethylene labelled with C^{14} were carried out at 195°C over a cobalt-thorium catalyst. (Author)

Gudkov, S. F. and Fedulova, V. P.
A METHOD FOR THE PREPARATION OF FORMALDEHYDE. 9 July 62, 2p.
Order from OTS or SLA $1.10 62-18971

Trans. of Russian patent 112,633, 1958 [filed 22 July 57 under no. 580,963].
Another trans. is available from ATS $5.00 as ATS-27P62R [1962] 2p.

DESCRIPTORS: Preparation, *Formaldehyde, *Oxides, *Nitrogen compounds, *Hydrocarbons, Gases, Temperature.

A method for the preparation of formaldehyde by incomplete oxidation of gaseous hydrocarbons with atmospheric oxygen in the presence of nitrogen oxides as catalyst. The process is carried out in an apparatus part of whose inner surface is heated to a temperature above 500°, the remainder being cooled to a temperature below 100°. (Author)

Itaishi, Minami and Itaishi, Taeko.
ION EXCHANGE PREPARATION OF NICOTINE SULFATE, PT. II. [1962] 24p.
Order from K-H $30.00 K-H-11436 h

Trans. of [Nihon Senbai Kosha Chuo Kenkyusho Kenkyu Hokoku (Japan) 1954, no. 90, p. 150-162.

DESCRIPTORS: *Ion exchange, Preparation, *Nicotine, *Sulfates

Jurkiewicz, Jan and Rosinski, Stefan.
COAL TAR COMPOUNDS (Zwiazki Wystepujace w Smolach) tr. by W. Kulerski. 1962 [141]p. 66 refs.
PL-480 Int.
Order from OTS $1.50 60-21244

Trans. of Koks-Smola-Gaz (Poland) 1956, v. 1, no. 4, p. 143-152; 1957, v. 2, no. 1, p. 22-28; no. 2, p. 62-65; no. 3, p. 98-107; no. 4, p. 144-149; no. 5, p. 180-188; 1958, v. 3, no. 1, p. 20-25.

DESCRIPTORS: *Coal tar, Organic compounds, Hydrocarbons, Classification, *Nitrogen compounds, *Sulfur compounds, *Oxygen compounds, *Aliphatic compounds, *Polymers

Contents:
Prefactory note
Principles of classification of organic compounds in the regular system of hydrocarbons: general principles and introduction
Nitrogen compounds
Sulfur compounds
Oxygen compounds
Aromatic hydrocarbons
Hydro-aromatic, aromatic-hydroaromatic and high-molecular compounds

Kolesnikov, G. S., Rodionova, E. F., and Fedorova, L. S.
SYNTHESIS, POLYMERIZATION, AND COPOLYMERIZATION OF ESTERS OF VINYLPHOSPHONIC ACID. [1962] 8p.
Order from ATS $9.85 ATS-02P66R

Trans. of mono. Khim[iya] i Primenenie Fosfororganicheskikh Soedin[enii] (Akad. Nauk SSSR, Kazansk. Filial, tr. Konf. (no. 2) 1959) [Moscow] 1962, p. 255-262.
A complete trans. of mono. is available from OTS or SLA $38.50 as 62-33349, JPRS-15432, 25 Sep 62 [1160]p.

DESCRIPTORS: *Phosphonic acids, *Vinyl radicals, Synthesis, Polymerization.

Kolobikhin, V. A., Tyuryaev, I. Ya. and others.
PREPARATION OF BUTADIENE BY THE OXIDATIVE DEHYDROGENATION OF n-BUTYLENES. [1962] 3p.
Order from ATS $5.25 ATS-77P64R

Trans. of Akad[emiya] Nauk SSSR. Dokl[ady] 1962, v. 144, no. 5, p. 1053-1055.

DESCRIPTORS: *Butadienes, Preparation, *Butenes, Oxidation, Dehydrogenation.

Kreshkov, A. P. and Karateev, D. A.
A STUDY OF REACTIONS OF TETRAALKOXYSILANES AND ALKYL(ARYL)ALKOXYSILANES WITH PHOSPHORIC ANHYDRIDE AND SOME PHOSPHORUS ACID CHLORIDES. [1962] 5p.
Order from ATS $6.50 ATS-01P66R

Trans. of mono. Khim[iya] i Primenenie Fosfororganicheskikh] Soedin[enii] (Akad. Nauk SSSR, Kazansk. Filial, tr. Konf. (no. 2) 1959) [Moscow] 1962, p. 324-328.
A complete trans. of mono. is available from OTS or SLA $38.50 as 62-33349, JPRS-15432, 25 Sep 62 [1160]p.

DESCRIPTORS: *Phosphorus compounds, Anhydrides, *Phosphorus acids, Chlorides, *Silanes, Alkoxy radicals, Chemical reactions.

Mironov, V. F. and Maksimova, N. G.
REACTION OF TRICHLOROSILANE WITH HYDROCARBONS AT HIGH TEMPERATURES. [1962] 4p.
Order from ATS $5.50 ATS-43P65R

Trans. of #Akad[emiya] Nauk SSSR. Otd[elenie] Khim[icheskikh] Nauk. Izv[estiya] 1962, no. 7, p. 1303-1305.

DESCRIPTORS: *Silanes, *Chlorides, Chemical reactions, *Hydrocarbons, Thermochemistry.

Nazarov, I. N. and Yanbikov, Ya. M.
ACETYLENE DERIVATIVES. XXXV. ACTION OF HYDROCHLORIC ACID ON DISUBSTITUTED DIENYNES: SYNTHESIS OF SUBSTITUTED CYCLOPENTENONES. [1962] 3p. 4 refs.
Order from OTS or SLA $1.10 62-16784

Abstract trans. of Akademiya Nauk SSSR. Otdelenie Khimicheskikh Nauk. Izvestiya, 1943, no. 5, p. 389-393.

DESCRIPTORS: *Acetylene derivatives, *Hydrochloric acid, *Cyclopentenes, Ketones, Synthesis.

Petrov, K. A. and Parshina, V. A.
PROPERTIES OF (HYDROXYMETHYL) PHOSPHONIUM CHLORIDES AND (HYDROXYMETHYL) PHOSPHINES. Pt. 4 of Reactions of Phosphines. 12 Jan 62 [7]p. 2 refs
Order from OTS or SLA $1.10 62-16003

Trans. of #Zhur[nal] Obshchei Khim[ii] (USSR) 1961, v. 31 [no. 10] p. 3421-3424.

DESCRIPTORS: *Phosphines, Oxides, *Phosphonium compounds, Chlorides, Chemical reactions, Chemical properties, Hydroxides, Methyl radicals.

The decomposition of alkyltris(hydroxymethyl)phosphonium chlorides by alkaline reagents to the corresponding phosphines and phosphine oxides was studied. It was shown that alkylbis(hydroxymethyl)phosphines and phosphine oxides are extremely reactive substances (Author) (See also 62-16004)

Petrov, K. A., Parshina, V. A., and Gaidamak, V. A.
REACTIONS OF PRIMARY AROMATIC PHOSPHINES WITH ALDEHYDES AND KETONES. Pt. 2 of Reactions of Phosphines. 19 Dec 61 [7]p. 2 refs.
Order from OTS or SLA $1.10 62-16005

Trans. of #Zhur[nal] Obshchei Khim[ii] (USSR) 1961, v. 31 [no. 10] p. 3411-3414.

DESCRIPTORS: *Phosphines, Phosphonium compounds, Chlorides, Chemical reactions, *Aldehydes, *Ketones, Formaldehyde, Acetaldehydes, Benzaldehydes, Acetophenones, Preparation.

We studied the reaction of phenylphosphine with formaldehyde, acetaldehyde, benzaldehyde, and acetophenone and showed that it proceeds with the formation of salts of phosphonium bases and phosphines. A salt of phenyltris(hydroxymethyl)phosphonium chloride and phosphines were used to prepare various derivatives. (Author)

Petrov, K. A. and Parshina, V. A.
REACTIONS OF SECONDARY PHOSPHINES WITH ALDEHYDES AND KETONES. Pt. 3 of Reactions of Phosphines. 5 Jan 62 [7]p. 1 ref.
Order from OTS or SLA $1.10 62-16004

Trans. of #Zhur[nal] Obshchei Khim[ii] (USSR) 1961, v. 31 [no. 10] p. 3417-3420.

DESCRIPTORS: *Phosphines, Phosphonium compounds, Chlorides, Chemical reactions, *Aldehydes, Ketones, Formaldehydes, Acetaldehydes, Benzaldehydes, Acetophenones.

Diphenylphosphine reacts with formaldehyde, acetaldehyde, benzaldehyde, and acetophenone in the presence of HCl to form diphenylbis(hydroxymethyl)phosphonium salts and phosphines. The action of tertiary amines on diphenylbis(hydroxymethyl)phosphonium salts gives a quantitative yield of phosphines, which are easily oxidized to (hydroxymethyl)phosphine oxides. Diphenylbis(hydroxymethyl)phosphonium salts and (hydroxymethyl)phosphine oxides are used to prepare various organophosphorus compounds. (Author) (See also 62-16005)

Pudovik, A. N. and Moshkina, T. M.
POLYETHYLENE GLYCOLS AND SOME OF THEIR DERIVATIVES. [1962] [10]p. 3 refs.
Order from OTS or SLA $1.10 62-16737

Trans. of #Zhurnal Obshchei Khimii (USSR) 1961, v. 31 [no. 12] p. 4028-4033.

DESCRIPTORS: *Glycols, *Ethylenes, Polymers, Preparation, Chemical properties, Viscosity, Phosphates, Acetates.

Individual polyethylene glycols with molecular weight from 200 up to 8 thousands, mono- and diphosphates, mono- and dichloroacetates of polyethylene glycols were prepared and characterized. (Author)

Schiemann, G.
THE ORGANIC PERFLUOROPERVINONINE (Die Organischen Fluoropervindungen). [1962] 6p. 5 refs.
Order from SLA $1.10 62-16748

Rough draft trans. of excerpts from German language article from unidentified source, 1951, v. 52, pt. 3, p. 86-89, 91-92, 95-97, 121.

DESCRIPTORS: *Dyes, Azo compounds, *Fluorocarbons Colors, Chemical properties.

Shipov, A. E.
PREPARATION AND PROPERTIES OF DIALKYLPHOSPHINODITHIOIC ACIDS. [1962] 5p.
Order from ATS $6.00 ATS-79P63R

Trans. of mono. Khim[iya] i Primenenie Fosfororgan-[icheskikh] Soedin[enii] (Akad. Nauk SSSR, Kazansk. Filial, tr. Konf. (no. 2) 1959) [Moscow] 1962, p. 84-87.

DESCRIPTORS: *Phosphines, Alkyl radicals, *Thio radicals, Acids, Preparation, Chemical properties.

Sokov, P. G.
REACTION OF ALPHA-AMINOPYRIDINE WITH BENZYL. Pt. 1 of Reaction of Alpha-Aminopyridine with Diketones. [1962] [8]p. 3 refs.
Order from OTS or SLA $1.10 62-18218

Trans. of Zhur[nal] Obshch[ei] Khim[ii] (USSR) 1940, v. 10 [no. 16] p. 1457-1461.

DESCRIPTORS: *Pyridines, Chemical reactions, *Ketones, *Benzils, Carboxylic acids, Azoles, Amines

When alpha-aminopyridine is heated with benzyl at a temperature of 165-225°, alpha-aminopyridine reacts in the tautomeric pyridonimido form. The primary reaction product is 2, 3-diphenyl-2, 3-dihydroxy-2, 3-dihydropyrimidazole, which in the course of the reaction undergoes pinacolyl rearrangement, forming 2, 2-diphenyl-3-oxo-2, 3-dihydropyrimidazole. The 2, 3-diphenyl-3-oxo-2, 3-dihydropyrimidazole compound formed is a very unstable product. It easily adds water with opening of the imidazole ring, forming pyridyl-aminodiphenylmethanecarboxylic acid, which loses CO_2 at the melting point and is converted into pyridyl-amindodiphenylmethane. The phenyl groups during the pinacolyl rearrangement are shifted in the direction of the nitrogen of the amino group of alpha-aminopyridine, which leads to the synthesis as the result of the reaction principally if not exclusively the derivative of the amino form of alpha-aminopyridine. Benzilic rearrangement does not take place during the reaction. (Author)

Tsvetkov, E. N.
ESTERS OF CYCLOPENTADIENYL-, 1-INDENYL-, AND 9-FLUORENYL-PHOSPHONOUS ACIDS. [1962] 6p.
Order from ATS $7.25 ATS-87P63R

Trans. of mono. Khim[iya] i Primenenie Fosfororgan-[icheskikh] Soedin[enii] (Akad. Nauk SSSR, Kazansk. Filial, tr. Konf. (no. 2) 1959) [Moscow] 1962, p. 156-160.
A complete trans. of mono. is available from OTS or SLA $38.50 as 62-33349, JPRS-15432, 25 Sep 62 [1160]p.

DESCRIPTORS: *Phosphorus compounds, Acids, Esters.

Zapolskii, V. V.
MERCURIODIDES OF PYRIDINE, REPT. II (1). [1962] 10p.
Order from K-H $12.50 K-H-5461-f

Trans. of [Vsesoyuznyi Nauchno-Issledovatel'skii Institut Tabachnoi i Makhorkovoi Promyshlennosti. Trudy] (USSR) 1931, v. 81, p. 113-118.

DESCRIPTORS: *Mercury compounds, *Iodides, *Pyridines.

Physical Chemistry

[JOURNAL OF PHYSICAL CHEMISTRY] 1943, VOL. 17, NO. 1: [TABLE OF CONTENTS AND SELECTED ABSTRACTS IN THE FIELD OF PETROLEUM LITERATURE]. [1962] 3p. 1 ref.
Order from OTS or SLA $1.10 62-14637

Abstract trans. of Zhurnal Fizicheskoi Khimii (USSR) 1943, v. 17, no. 1, p. 32-44.
A complete trans. is available from SLA as RT-1006, 23p.

DESCRIPTORS: *Physical chemistry, *Abstracts, *Petroleum industry, Dynamics, *Sorption, *Activated carbon.

Contents:
Kinetics of sorption on granulated bodies, by Ya. Zabezhinskii and A. Venichkina.

PROGRESS OF CHEMISTRY, 1941, VOL. 10, NO. 3: [TABLE OF CONTENTS AND SELECTED ABSTRACTS IN THE FIELD OF PETROLEUM LITERATURE]. [1962] 2p.
Order from OTS or SLA $1.10 62-16800

Abstract trans. of Uspekhi Khimii (USSR) 1941, v. 10, no. 3, p. ##262-293, 350-358.
##A complete trans. is available from OTS or SLA $3.60 as 61-16915 [1961] 34p.

DESCRIPTORS: *Abstracts, *Petroleum, *Catalysis, Molecular structure, Symposia, *Nuclear properties.

Contents:
##Catalysis and change of molecular form, by A. A. Balandin
All-union Meeting on the Physics of the Atomic Nucleus, Nov 40, by I. V. Kurchatov.

Alekseeva, K. A., Dragunskaya, V. S. and others.
THE SOLUBILITY OF SYNTHESIS GAS IN SOME HYDROCARBONS AND OXYGEN-CONTAINING PRODUCTS IN OXO-SYNTHESIS REACTION CONDITIONS. [1961] [6]p. 8 refs. Warren Spring Lab. Trans. NT751. [DSIR] NLL M.4754.
Order from OTS or SLA $1.10 62-24854

Trans. of Khim[iya i] Tekh[nologiya] Topliv [i Masel] (USSR) 1959 [v. 4] no. 5, p. 24-28.
Other translations are available from ATS $7.60 as ATS-32N52R [1961] 6p.; from LC or SLA mi$1.80, pt$1.80 as 60-13647, DSIR LLU M.840 [1960] [9]p.; and in German from T.I.B. $1.85 as 62-27052.

DESCRIPTORS: *Gases, Solubility, Hydrocarbons, Alcohols, *Oxo process, Hydrogen, Carbon dioxide, Nitrogen, Carbon compounds, Oxides.

For abstract see Technical Translations 4: 142, 1960.

Antonovskaya, E. I. and Vil'k, Yu. N.
CORROSION DU CUIVRE ET DE SES ALLIAGES DANS L'ACIDE FLUORHYDRIQUE (Korroziya Medi i Ee Splavov v Plavikovoi Kislote) [Corrosion of Copper and its Alloys in Hydrofluoric Acid] tr. by Baftalovski. 1 Feb 62 [11]p. (Russian text included) 13 refs. CEA Trans. no. R 1482 (text in French).
Order from OTS or SLA $1.60 62-25095

Trans. in French of Khim[icheskaya] Promyshl[ennost'] (USSR) 1961, no. 6 [p. 431-432].

DESCRIPTORS: *Copper, *Copper alloys, *Corrosion, Hydrogen compounds, Fluorides, Sulfuric acid, *Corrosive liquids.

On a déterminé les vitesses de corrosion du cuivre M-I, du laiton L-62 et des bronzes BrA5 et BrAN dans l'acide fluorhydrique bouillante. On a étudié l'influence de l'oxygène, de H_2SO_4, de SO_2, de H_2S et de H_2O_2 sur la corrosion du cuivre et de ses aliages dans l'acide fluorhydrique à 40 pour cent à une température de 110-114°. On a montré, que l'oxygène, l'eau oxygénée et le sulfure d'hydrogène intensifient la corrosion du cuivre dans les conditions indiquées. L'anhydride sulfurique n'avait pas, dans les conditions indiquées, d'influence importantes sur la résistance du cuivre. L'addition de l'acide sulfurique améliore le caractère de corrosion du cuivre, mais augmente la vitesse de la corrosion générale. Les alliages de cuivre (BrA5, BrAN et L-62) sont corrodés, dans les conditions citées plus fortement que le cuivre M-I. (Author)

Avgul, N. N., Kiselev, A. V., and Lygina, I. A.
ADSORPTION HEATS AND ISOTHERMS OF ALCOHOLS ON CARBON BLACKS WITH DIFFERENT GRAPHITIZING. [1962] 8p. 16 refs.
Order from OTS or SLA $1.10 62-18379

Trans. of #Kolloidnyi Zhur[nal] (USSR) 1961, v. 23 [no. 4] p. 369-375.

DESCRIPTORS: *Alcohols, *Methanols, *Butanols, *Adsorption, *Thermochemistry, *Carbon black, Graphite.

The isotherms and differential heats of adsorption of methanol and n-butanol vapors on thermal carbon black T1, graphitized at 3000 C have been determined: It has been shown that the transition from graphitized channel black to graphitized thermal black, i.e. increase of surface homogeneity, leads to little change in the adsorption of alcohols, the wave-like form of the isotherms becoming more distinct. With increase in degree of surface homogeneity two maxima on the differential heats of adsorption isotherm of n-butanol appear in the region of predominent completion of the first and second layers. Adsorption of methanol vapor on transition from less to more highly graphitized blacks becomes mainly nonlocalized, instead of mainly localized. (Author)

Bädeker, K.
A PECULIAR FORM OF ELECTRICAL CONDUCTIVITY IN SOLID MATERIALS. [1962] 11p. (figs omitted) 9 refs.
Order from SLA $1.60 62-18484

Partial trans. (p. 566-581) of Annalen der Physik (Germany) 1909 [ser. 4] v. 29, p. 566-584.

DESCRIPTORS: *Electrical conductance, Heavy elements, *Copper compounds, *Oxides, *Iodine, Vapors, Electrical properties, Hall effect.

Balandin, A. A., Spitsyn, Vikt. I. and others.
A RADIATION METHOD FOR OBTAINING PLATINUM CATALYSTS [Radiatsionnyi Metod Polucheniya Platinovogo Katalizatora]. [1962] 2p. 4 refs. Warren Spring Lab. Trans. NT 731; DSIR NLL M.4971.
Order from OTS or SLA $1.10 62-25896

Trans. of Zhur[nal] Fiz[icheskoi] Khim[ii] (USSR) 1959, v. 33 [no. 3] p. 736-737.
Another trans. is available from OTS or SLA $1.10 as 62-14525 [1962] 4p.

DESCRIPTORS: *Radiochemistry, *Platinum catalysts, Production, Sodium compounds, Hydroxides.

For abstract see Technical Translations 8: 1116, 1962.

Barenblatt, G. I. and Zel'dovich, Ya. B.
ON THE STABILITY OF FLAME PROPAGATION. [1961] 6p. 12 refs. MDF B-135.
Order from OTS or SLA $1.10 62-19818

Trans. of Prikl[adnaya] Mate[matika i] Mekh[anika] (USSR) 1957, v. 21, no. 6, p. 856-859.

DESCRIPTORS: *Flame propagation, Stability, Combustion.

A definition of the stability of the flame propagation region is given in and it is shown that the region always appears to be stable in the single equation case in the one-dimensional problem. This conclusion refers to both thermal and to chain flame propagation. (Author)

Berezin, I. V., Kazanskaya, N. F., and Martinek, K.
REACTIVITY OF TOLUENE BONDS IN REACTION WITH FREE METHYL RADICALS. [1962] 9p. 18 refs.
Order from OTS or SLA $1.10 62-18385

Trans. of #Zhur[nal] Fiz[icheskoi] Khim[ii] (USSR) 1961, v. 35 [no. 9] p. 2039-2046.

DESCRIPTORS: *Toulenes, *Chemical bonds, Chemical reactions, Reaction kinetics, Free radicals, *Methyl radicals, Tritium.

The relative rate constants, activation energy differences (cal/mole) and pre-exponential factor ratios have been determined for the removal of tritium and hydrogen atoms from various bonds of the toluene molecule by free methyl radicals. Correlations in the addition of free methyl radicals to the toluene nucleus have been examined. (Author)

Bezus, A. G., Dreving, V. P., and Kiselev, A. V.
ISOTHERMS AND HEATS OF ADSORPTION OF PROPANE AND PROPYLENE ON GRAPHITIZED CARBON BLACK: ENERGY OF THE ADSORPTION FORCES. [1962] 10p. 28 refs.
Order from OTS or SLA $1.10 62-18380

Trans. of #Kolloidnyi Zhurnal (USSR) 1961, v. 23 [no. 4] p. 389-397.

DESCRIPTORS: *Thermochemistry, *Propanes, *Propenes, *Adsorption, Energy, Entropy, *Carbon black, Graphite.

The adsorption isotherms of propane and propylene on graphitized carbon black were measured at 235, -45 and -55 C. Completion of the monomolecular layer by both adsorbates coincides with an abrupt fall in the differential heat curves and with a minimum in the entropy curves. The theoretically calculated heats of adsorption are close to the values obtained from the isosteres. The linear relation between the heats of adsorption of normal saturated hydrocarbons and the number of carbon atoms in the molecule holds also for the case of propane. (Author)

Bogoyavlenskii, P. S.
THE EFFECT OF LARGE MONOVALENT IONS ON THE STRUCTURE OF WATER AND ITS INFLUENCE ON THE SOLUBILITY OF SALTS. [1962] 8p.
Order from ATS $13.50 ATS-00P65R

Trans. of Zh[urnal] Fiz[icheskoi] Khim[ii] (USSR) 1958, v. 32, no. 9, p. 2035-2041.

DESCRIPTORS: *Water, Molecular structure, Ions, *Salts, Solubility.

Boulle, Andre and Dupont, Marcelle.
ANHYDROUS DICALCIUM PHOSPHATE, tr. by Bertha P. Klenova. 5 Aug 57, 3p. 1 ref. TVA 3645.
Order from OTS or SLA $1.10 62-32271

Trans. of [Academie des Sciences, Paris]. Compt[es] Rend[us] (France) 1955, v. 241, p. 42-44 (pub. by Gauthier-Villars et Cie, Paris).

DESCRIPTORS: *Calcium compounds, *Phosphate, *Anhydrides, Heating, Chemical reactions.

Deryagin, B. V., Zakhavaeva, N. N. and others.
CINEMATOGRAPHIC STUDY OF THE FLOW OF THIN LIQUID LAYERS ON A SOLID SURFACE. [1962] 5p.
Order from ATS $7.50 ATS-33P63R

Trans. of #Kolloidn[yi] Zh[urnal] (USSR) 1962, v. 24, no. 3, p. 289-292.
Another trans. is available from OTS or SLA $1.60 as 62-32839, JPRS-15070, 31 Aug 62 [11]p.

DESCRIPTORS: *Fluid flow, Thin films, *Liquids, Mechanical properties, Solids, Surfaces, Photographic analysis, Motion picture photography.

For abstract see Technical Translations 8: 1117, 1962.

Efimov, E. A., Erusalimchik, I.G., and Sokolova, G. P.
OXIDATION OF A GERMANIUM SURFACE IN A CHEMICAL ETCHING PROCESS. [1962] 8p. 4 refs.
Order from OTS or SLA $1.10 62-18226

Trans. of #Zh[urnal] Fiz[icheskoi] Khim[ii] (USSR) 1962, v. 36, no. 4, p. 765-769.

DESCRIPTORS: *Semiconductors, *Etched crystals, *Germanium, Electrodes, Surface properties, Oxidation, Oxides, Thin films, *Electrochemistry.

The state of a germanium surface previously treated in various etchants was studied by the charging curve method. Oxide films of specific composition and structure are formed on the germanium surface when treated in each etchant. The most uniform oxide film is formed when germanium is etched in the peroxide etchant. A clear horizontal area at $\zeta \approx -0.3$ v is observed in the charging curves, taken after treatment of the sample in a given etchant. The specific effect of the action of all except the peroxide etchant disappears when the etched germanium specimen is held in air. (Author)

Fedorova, A. I. and Vidovich, G. L.
DIFFUSION KINETICS UNDER TURBULENT CONDITIONS OF MIXING (Diffuzionnaya Kinetika pri Turbulentnom Rezhime Razmeshivaniya) tr. by Lydia Venters. Mar 62, 7p. 7 refs.
Order from OTS or SLA $1.10 AEC-tr-5042

Trans. of Akademiya Nauk SSSR. Doklady, 1956, v. 109, no. 1, p. 135-138.

DESCRIPTORS: *Diffusion, *Turbulence, Turbulent boundary layer, Temperature, Convection, Jet mixing flow, Electrolysis, Electrolytes, Electrodes, Polarization, Heat of activation.

Firsov, A. P., Tsvetkov, V. I., and Chirkov, N. M.
KINETICS AND MECHANISM OF α-OLFINS POLYMERIZATION ON COMPLEX CATALYSTS. II. POLYMERIZATION OF PROPYLENE IN THE PRESENCE OF TITANIUM TRICHLORIDE WITH VARIOUS ALKYLALUMINUM COMPOUNDS. [1962] 11p. 9 refs.
Order from OTS or SLA $1.60 62-18382

Trans. of Vysokomolekulyarnye Soed[ineniya] (USSR) 1961, v. 3 [no. 8] p. 1161-1169.

DESCRIPTORS: *Propenes, Polymerization, Reaction, Kinetics, Catalysts, *Complex compounds, *Titanium compounds, Chlorides, *Metalorganic compounds, *Aluminum compounds.

The polymerization of propylene under the influence of α-$TiCl_3$ and various AlR_3 compounds was investigated. The aluminum compounds were $Al(C_2H_5)_3$ $Al(n\text{-}C_3H_7)_3$, $Al(iso\text{-}C_4H_9)_3$ and $Al(C_6H_5)_3$. The polymerization rate constants over the range 40-70 C were found to be of close values for all the above co-catalysts and the activation energies practically the same (13500 ± 400 cal/mole). The stereoisomeric composition of polypropylene gas was determined in relation to the nature of the AlR_3 co-catalyst. (Author)

Gladyshev, G. P. and Rafikov, S. R.
POLYMERIZATION INITIATION BY ELECTRIC DISCHARGES, FORMED ON THE BOUNDARY OF PHASES SEPARATION. [1962] 4p. 25 refs.
Order from OTS or SLA $1.10 62-16117

Trans. of Akad[emiya] Nauk SSSR. Doklady, 1961, v. 137 [no. 1] p. 113-115.
Another trans. is available from OTS or SLA $1.10 as 62-24846, Courtaulds ML-3341, 19 July 61 [5]p.

DESCRIPTORS: *Polymerization, *Electric discharges Phase studies, *Acrylic resins, Acrylonitriles.

Gol'dberg, N. A. and Kucheryavyi, V. I.
CHEMISORPTION PROCESS MODELS [Modelirovanie Khemosordtsionnykh Protsessov]. Apr 62, 6p. 10 refs.
Order from ICE in v. 2, no. 2, $15.00/year

Trans. of Khim[icheskaya] Prom[yshlennost'] (USSR) 1961, no. 9 [p. 630-636].

DESCRIPTORS: *Chemical engineering, *Chemisorption, Models (Simulations), Towers (Chemistry), Hydrodynamics, Mass transfer.

Gromov, B. A., Miller, V. B. and others.
MOBILITY OF IONOLE IN POLYPROPYLENE AND POLYFORMALDEHYDE. [1962] 6p. (2 figs. omitted) 3 refs.
Order from OTS or SLA $1.10 62-14422

Trans. of Vysokomolekulyarnye Soedineniya (USSR) 1961, v. 3, no. 8, p. 1231-1233.

DESCRIPTORS: *Polymers, Stabilization, *Phenols, Butyl radicals, Methyl radicals, Diffusion, *Propenes, *Formaldehydes.

The diffusion coefficients of 2,6-di-tret-butyl-4-methylphenol (ionole) in polypropylene and polyformaldehyde for various temperatures were determined. Within a temperature interval of 60-110° the diffusion coefficient of ionole in propylene is equal to $D = 5.10^6 . e^{-2300/RT}$, and the diffusion coefficient of ionole in polyformaldehyde (at 80-110°) is equal to $D = 2,5.10^1 . e^{-16300/RT}$. (Author)

Ivanov, M. E.
THE CALCULATION OF VAPOR CONDENSATION FROM A VAPOR-GAS MIXTURE [Raschet Protsessa Kondensatsii para iz Paro-Gazovoi Smesi]. Apr 62, 8p. 12 refs.
Order from ICE in v. 2, no. 2, $15.00/year

Trans. of Khimicheskaya Promyshlennost' (USSR) 1961, no. 9 [p. 644-650].

DESCRIPTORS: *Chemical engineering, *Vapors, Gases, Mixtures, *Condensation, Fog, Towers (Chemistry), Mass transfer, Heat transfer.

Kiselev, A. V. and Poshkus, D. P.
STATISTIC-THERMODYNAMIC CALCULATION OF THE ADSORPTIVE EQUILIBRIUM OF BENZENE OF GRAPHITE. [1962] 6p. 11 refs.
Order from OTS or SLA $1.10 62-18383

Trans. of Akad[emiya] Nauk SSSR. Doklady, 1961, v. 139 [no. 5] p. 1145-1148.

DESCRIPTORS: *Benzenes, Adsorption, *Graphite, Statistical analysis, *Thermodynamics.

Kishinevskii, M. Kh. and Pamfilov, A. V.
SUR LA CINETIQUE DE L'ABSORPTION, tr. by Mme. Giuliani. 24 Mar 62 [21]p. 7 refs. CEA Trans. no. R1587 (text in French).
Order from OTS or SLA $2.60 62-33268

Trans. in French of Zh[urnal] Prikl[adnoi] Khim[ii] (USSR) 1949, v. 22, no. 11, p. 1173-1182.

DESCRIPTORS: *Absorption, Dynamics, Theory, Diffusion, Convection, Turbulence, Phase studies.

Klassen, V. I. and Starchik, L. P.
MECHANISM OF THE ACTION OF REAGENTS IN FLOTATION (K Mekhanizmu Deistviya Reagentov pri Flotatsii). [1962] [3]p. 5 refs. [Warren Spring Lab.] Trans. NT 681; DSIR NLL M. 3601.
Order from OTS or SLA $1.10 62-25292

Trans. of Akademiya Nauk SSSR. Doklady, 1957, v. 115 no. 6, p. 1129-1130.
Another trans. is available from SLA as R-4231, 6p.

DESCRIPTORS: *Flotation, *Reagents.

Klochko, M. A.
THE ANALOGY BETWEEN THE PHASE RULE AND EULER'S THEOREM FOR POLYHEDRONS. [1962] 12p. 10 refs.
Order from OTS or SLA $1.60 62-14847

Trans. of Akad[emiya] Nauk SSSR. Sektor Fiz[iko]-Khim[icheskogo] Anal[iza. Izv[estiya] 1949, v. 19, p. 82-88.

DESCRIPTORS: *Geometric forms, Phase studies, *Chemical equilibrium, Physical chemistry, Chemical analysis, Algebraic topology, Analysis.

The analogy between the mathematical formulation of the phase rule and Euler's theorem is purely one of form based on the similarity of certain algebraic groupings. Nevertheless, the study of topological rules, such as Euler's theorem, inherent in phase diagrams is useful for the profound understanding of chemical equilibria. (Author)

Kolobikhin, V. A. and Tyuryaev, I. Ya.
BUTADIENE CONVERSION RATE ON THE CATALYST FOR DEHYDROGENATION OF n-BUTYLENE. [1962] 7p. 11 refs.
Order from OTS orSLA $1.10 62-18387

Trans. of #Zhur[nal] Fiz[icheskoi] Khim[ii] (USSR) 1961, v. 35 [no. 4] p. 776-781.

DESCRIPTORS: *Butadienes, Reaction kinetics, *Catalysts, *Butenes, Dehydrogenation.

The rate of butadiene conversion of a n-butylene dehydrogenation catalyst in the presence of water vapor has been investigated. The principal reactions of butadiene are its hydrogenation to butylene and the formation of "carbons". The over-all equations of C_4H_6 conversion and reaction of water vapor with "carbons" have been established. The constants of the kinetic equation for the butadiene reaction have been determined and an equation has been derived for the fall in catalyst activity in the cycle. (Author)

Kundiev, Yu. I. and Podlinyaeva, M. E.
SORPTION OF ORGANOPHOSPHORUS INSECTICIDE VAPORS BY ACTIVATED CARBON. [1962] 4p.
Order from ATS $5.50 ATS-90P65R

Trans. of mono. Khim[iya] i Primenenie Fosfororgan-[icheskikh] Soedin[enii] (Akad. Nauk SSSR, Kazansk. Filial, tr. Konf. (no. 2) 1959) [Moscow] 1962, p. 625-627.
A complete trans. of mono. is available from OTS or SLA $38.50 as 62-33349, JPRS-15432, 25 Sep 62 [1160]p.

DESCRIPTORS: *Phosphorus compounds, *Insecticides, Vapors, Sorption, *Activated carbon.

Kunin, T. I. and Serdyukov, V. I.
CHLORINE AND HYDROGEN EXPLOSION TEMPERATURES AND LIMITS IN HYDROGEN CHLORIDE. 21 Nov 62 [13]p. 2 refs. FTD-TT-62-1415.
Order from OTS or SLA $1.60 63-13910

Unedited rough draft trans. of Zhurnal Obshchei Khimii (USSR) 1946, v. 16, no. 9, p. 1421-1430.

DESCRIPTORS: Gases, *Hydrogen, *Chlorine, *Explosions, Temperature, Ignition, Electric discharges, Heating elements, Hydrogen compounds, Chlorides, Carbon dioxide, Nitrogen, Oxygen.

An investigation was made of the limits of explosion of chlorine-hydrogen mixtures in a medium of hydrogen chloride and to establish the effect of admixtures of CO_2, N_2, O_2 and water vapor on the change of the explosive properties of the investigated mixtures. The experiment basically is devoted to the study of the explosive properties of the $HCl + H_2 + Cl_2$ system. The dicomponent system $H_2 + Cl_2$, as the one most investigated, served us as an example of a selected method in accordance with data available in the literature regarding the limits of explosibility of hydrogen-chlorine mixtures. (Author)

Lafont, Robert.
STUDY OF A SATURATED SOLUTION OF ZINC SULFATE AT ROOM TEMPERATURE, tr. by Bertha P. Klenova. 7 Aug 57, 3p. 5 refs. TVA 3647.
Order from OTS or SLA $1.10 62-32272

Trans. of [Academie des Sciences, Paris]. Compt[es] Rend[us] (France) 1956, v. 242, p. 1154-1156 (pub. by Gauthier-Villars et Cie, Paris).

DESCRIPTORS: *Sulfates, *Zinc compounds, Temperature, Solutions.

The coupling effect of the internal oscillations of four SO_4^{--} ions in the crystal lattice of $ZnSO_4 \cdot 7H_2O$ reappears in the saturated solutions of this salt at room temperature. The structure of the saturated solutions over a narrow region, therefore, should be considered identical with that of the crystal lattice. (Author)

Lebedev, S. Ya. and Stavisskii, Yu. Ya.
MEASUREMENT OF THE VAPOR PRESSURE OF ALKALI METALS IN THE RANGE OF 10^{-5} TO 10^{-2}mm Hg. 30 Oct 62 [8]p. 5 refs. FTD-TT-62-1336.
Order from OTS or SLA $1.10 63-13915

Unedited rough draft trans. of #Pribory i Tekhnika Eksperimenta (USSR) 1962 [v. 7] no. 1, p. 142-144.

DESCRIPTORS: *Alkali metals, *Cesium, *Potassium, *Sodium, *Lithium, Vapor pressure, Measurement, Ionization, Tungsten, *Plasma physics, Low pressure research.

An instrument for measuring the vapor pressures of alkali metals over the range of 10^{-5} to 10^{-2} mm Hg is described. The operation of the instrument is based on the surface ionization of the alkali metal atoms on tungsten. The time constant of the instrument is $\sim 10^{-6}$ sec. (Author)

Levitskii, I. I., Gonikberg, M. G. and others.
PROMOTING ALUMINA-PLATINUM CATALYSTS WITH WATER. I. HYDROGENATION OF BENZENE. [1962] 7p.
Order from ATS $9.50 ATS-69P65R

Trans. of Akad[emiya] Nauk SSSR. Otd[elenie] Khim[icheskikh] Nauk. Izv[estiya] 1962, no. 7, p. 1169-1174.

DESCRIPTORS: *Benzenes, Hydrogenation, *Catalysts, *Aluminum compounds, Oxides, *Platinum catalysts, Water.

Margolis, Ya. L.
INTERMEDIATE ACTIVE FORMS OF THE CATALYTIC OXIDATION OF HYDROCARBONS. [1962] [9]p. 22 refs. BM Trans. no. 1804.
Order from OTS or SLA $1.10 62-33222

Trans. of Problemy Kinetiki i Kataliza (USSR) 1960, v. 10, p. 410-414.

DESCRIPTORS: *Hydrocarbons, *Oxidation, *Catalysis, Oxygen compounds, Ions, Catalysts, *Semiconductors, Surface properties.

It was determined by the study of the basic stages of catalytic oxidation of hydrocarbons that oxygen ion radicals and $(C_nH_{2n})^+$; $(C_nH_{2n+1})^+$ are active intermediate forms. Data from homolytic isotopic oxygen exchange indicates that partical dissociation of oxygen occurs at the surface of oxidizing catalyzers. Various types of ion radicals are formed during adsorption as a function of the electronic properties of the catalyser, the structure and the type of hydrocarbon molecule. The strength of the bond between the peroxide radical and the surface of the catalyser is determined by means of the reaction of extensive hydrocarbon oxidation. (Author)

Mastryukova, T. A.
TAUTOMERISM AND STRUCTURE OF THIO ACIDS OF PHOSPHORUS. APPLICATION OF THE HAMMETT EQUATION TO THE THEORY OF TAUTOMERIC EQUILIBRIUM. [1962] 10p.
Order from ATS $11.50 ATS-03P66R

Trans. of mono. Khim[iya] i Primenenie Fosfororganicheskikh] Soedin[enii] (Akad. Nauk SSSR, Kazansk. Filial, tr. Konf. (no. 2) 1959) [Moscow] 1962, p. 57-64.
A complete trans. of mono. is available from OTS or SLA $38.50 as 62-33349, JPRS-15432, 25 Sep 62 [1160]p.

DESCRIPTORS: *Phosphorus compounds, *Thio radicals, Acids, *Steriochemistry, Molecular isomerism, Molecular structure, Reaction kinetics, Theory, Equations.

Nakhodnova, A. P.
ELECTROCONDUCTIVITY OF THE OXIDES OF GROUP II METALS OF MENDELEEV'S PERIODIC SYSTEM [Elektroprovodnost' Okislov Metallov II Gruppy Periodicheskoi Sistemy D. I. Mendeleeva]. [1961] 5p. 10 refs. MDF N-101.
Order from OTS $0.50 62-11628

Trans. of Zh[urnal] Fiz[icheskoi] Khim[ii] (USSR) 1956, v. 30, no. 7, p. 1469-1472.
Another trans. is available from OTS or SLA $1.10 as 61-28914, RTS-1959 Nov 61 [7]p.

DESCRIPTORS: *Electrical conductance, *Oxides, *Metals, Temperature, Chemical analysis, Lattices, Crystal structure, Electric currents, Chemical elements, Periodic variations, Chemical industry, Chemical engineering, *Group II elements, *Semiconductors, Dielectrics.

For abstract see Technical Translations 7:335, 1962

Nesmeyanov, An. N. and Firsov, L. P.
TENSIONS DE VAPEURS DES OXYDES DE LITHIUM, DE BERYLLIUM, DE BORE, DE SILICIUM ET DE PLOMB (Davlenie Para Okislov Litiya, Berilliya, Bora, Kremniya i Svintsa) [Vapor Pressure of Oxides of Lithium, Beryllium, Boron, Silicon and Lead Oxides] tr. by A. Khazov. 18 Apr 62 [10]p. 10 refs. CEA Trans. no. R 1614 (text in French).
Order from OTS or SLA $1.10 62-33263

Trans. in French of Akad[emiya] Nauk SSSR. [Otdelenie Tekhnicheskikh Nauk]. Izvestiya: [Metallurgiya i Toplivo] 1959, no. 3, p. 150-151.
A trans. in English is available from OTS or SLA $1.10 as 60-11551, JPRS-2570, 26 Apr 60, 5p.

DESCRIPTORS: *Lithium compounds, *Beryllium compounds, *Boron compounds, *Silicon compounds, *Lead compounds, Oxides, Sublimation, *Vapor pressure.

For abstract see Technical Translations 4: 56, 1960.

Paramonova, V. I., Mosevich, A. N., and Subbotina, A. I.
USE OF ION EXCHANGE IN STUDYING THE STATE OF A SUBSTANCE IN SOLUTION. IV. STUDY OF COMPLEX-FORMATION OF YTTRIUM WITH LACTIC ACID BY THE METHOD OF "ABSORPTION CURVES". [1961] 11p. 3 refs.
Order from OTS or SLA $1.60 UCRL Trans-535 (L)

Trans. of Zhurnal Neorganicheskoi Khimii (USSR) 1958, v. 3 [no. 1] p. 88-94.

DESCRIPTORS: *Ion exchange, Ion exchange resins, Solutions, *Complex compounds, *Yttrium, *Lactic acid, *Absorption, Reaction kinetics.

See also 62-13800

Pleskov, Yu. V.
THE ELECTROCHEMICAL BEHAVIOR OF GALLIUM ARSENIDE. [1962] 9p. 10 refs.
Order from OTS or SLA $1.10 62-18227

Trans. of A[kademiya] N[auk] SSSR. Doklady, 1962, v. 143, no. 6, p. 1399-1402.

DESCRIPTORS: *Electrochemistry, *Gallium compounds, *Arsenides, Electrical properties, Polarization, Photoconductivity.

Predvoditelev, A. S.
RATES OF CHEMICAL REACTIONS IN TURBULENT FLOWS, II (II O Shorostyakh Khimicheskikh Reaktsii v Turbulentnykh Potokakh) tr. by Sergey Shewchuck. Jan 62 [23]p. (foreign text included) 3 refs.
Order from OTS or SLA $2.60 UCRL Trans-782

Trans. of Inzhenerno-Fizicheskik Zhurnal (USSR) 1961, v. 4, no. 1, p. 14-21.
Another trans. is available from OTS or SLA $2.60 in 62-19653, FTD-TT-61-158, 6 Feb 62 [25]p.

DESCRIPTORS: *Axially symmetric flow, *Turbulence, Chemical reactions, *Reaction kinetics, Gases, Combustion, Cylindrical bodies.

A formula is obtained for the rate of a chemical reaction taking place in an axially symmetrical turbulent flow. The data obtained by the formula is compared with the experimental data obtained by combustion of burners with cylindrical nozzles. (Author)

Reznitskii, L. A.
APPROXIMATE METHOD FOR CALCULATION OF THE FORMATION HEAT OF INORGANIC COMPOUNDS [1962] 8p. 11 refs.
Order from OTS or SLA $1.10 62-18386

Trans. of #Zhur[nal] Fiz[icheskoi] Khim[ii] (USSR) 1961, v. 35 [no. 8] p. 1853-1859.

DESCRIPTORS: Inorganic substances, *Heat of formation, Determination, Tables, *Thermochemistry.

An approximate method is proposed for evaluation of the formation heat of inorganic compounds, which is based on the linear relationship of ΔH_{298} with the normal electrode potential of the metal E. The method is applicable to compounds with complex multiatomic anions. Accuracy of ΔH_{298} calculation occurs within the limits of 1 to 4%. Heats and isobaric potentials of formation under standard conditions were calculated for some compounds. (Author)

Rozlovskii, A. I.
A REFINEMENT OF THE SOLUTION OF THE EQUATION OF THERMAL CONDUCTIVITY IN A FLAME. 15 Feb 62 [9]p. 9 refs. FTD-TT-61-387.
Order from OTS or SLA $1.10 62-23673

Unedited rough draft trans. of Akademiya Nauk SSSR. Doklady, 1961, v. 136, no. 5, p. 1150-1153.

DESCRIPTORS: *Flames, *Thermal conductivity, Heat of activation, Equation of state, *Differential equations, Integration, Combustion.

Samsonov, G. V., Makarenko, G. N., and Kosolapova, T. Ya.
SCANDIUM CARBIDES AND COMPLEX SCANDIUM-TITANIUM CARBIDES. 19 Sep 62, 2p. AID rept. 62-146; AD-285 345.
Order from OTS or SLA $1.10 62-33380

Abstract trans. of Akademiya Nauk SSSR. Doklady [1962] v. 144, no. 5, p. 1062-1065.

DESCRIPTORS: *Carbides, *Scandium, *Titanium compounds, Transition elements, Structural properties, Hardness, X-ray diffraction analysis, Synthesis.

Seiyama, Tetsuro, Suenaga, Akio, and Sakai, Wataru.
THERMODYNAMIC CONSIDERATIONS ON THE CATALYTIC OXIDATION REACTIONS OF CARBON MONOXIDE AND SULFUR DIOXIDE. [1962] 20p. 13 refs.
Order from SLA $1.60 62-14964

Trans. of Nihon Kagaku Zasshi (Japan) 1961, v. 82, no. 3, p. 292-298.

DESCRIPTORS: *Carbon compounds, *Monoxides, *Sulfur compounds, *Dioxides, Oxidation, *Catalysts, *Semiconductors, *Thermodynamics, Reaction kinetics.

With respect to the oxidation reaction of carbon monoxide, the order of activities of various types of oxide catalysts was evaluated from the thermodynamic properties of the catalysts. Similar considerations were made on the oxidation of sulfur dioxide, but in this instance, simple application of the thermodynamic values of the oxide catalysts did not agree with the actual state of affairs. It was suggested that the oxidation reaction of sulfur dioxide progressed as a result of oxidation-reduction of the catalyst. It was also pointed out that the significance of oxide semi-conductors as catalysts in catalytic oxidation reactions lay in the susceptibility of these oxides to deviation from stoichiometric composition. (Author)

Semiokhin, I. A., Kobozev, N. I., and Pitskhelauri, E. N.
REACTION OF HYDROGEN AND OXYGEN IN SILENT ELECTRICAL DISCHARGE. VI. KINETIC ANALYSIS OF THE PROCESS USING THE EQUATIONS OF IRREVERSIBLE FIRST-ORDER PARALLEL-CONSECUTIVE REACTIONS. 17 Sep 62 [18]p. 3 refs. FTD-TT-62-1171; AD-287 696.
Order from OTS or SLA $1.60 63-13194

Unedited rough draft trans. of #Zhurnal Fizicheskoi Khimii (USSR) 1962, v. 36 [no. 2] p. 336-344.

DESCRIPTORS: *Hydrogen, *Oxygen, Chemical reactions, Reaction kinetics, Equations, *Electric discharges.

The kinetics of the processes of the reaction between oxygen and hydrogen in glass-metal reactors conform to the scheme of first order parallel-consecutive irreversible reactions. The nondependence of the constants, calculated as functions of the specific energy, on the conditions of the experiment is established for a fairly wide range of change in the conditions of the process. The reactions of the formation and decomposition of H_2O_2 are truly electrogaseous processes, which depend upon the conditions existing in the discharge. The reaction of the direct formation of water from hydrogen and oxygen is a catalytic reaction, which does not depend upon the conditions existing in the discharge, but is determined by the nature of the electrode surfaces. When all-glass or glass-aluminum reactors (with a 100% aluminum content in the electrode) are used, it is possible to eliminate the parasitic process of the formation of water. (Author)

Shestoperov, S. V., Lyubimova, T: Y[u]., and Ivanov, F. M.
THE INFLUENCE OF SURFACE-ACTIVE ADMIXTURES ON CEMENT-WATER REACTIONS, tr. by G. N. Gibson. [1962] 6p. 5 refs. DSIR Library Communication 519.
Order from OTS or SLA $1.10 62-25372

Trans. of Akademiya Nauk SSSR. Doklady, 1950, v. 70, no. 6, p. 1045-1048.
A trans. in Dutch is available from OTS or ETC $1.55 as MTWL-355, 9p.

DESCRIPTORS: *Cements, Water, Colloids, Detergents *Hydrates, *Hydrolysis, Chemical reactions.

Shibata, Y. and Matsumoto, B.
CATALYTIC REDUCTION BY RHODIUM COMPLEX SALTS. Pt. 14 of Catalytic Oxido-Reduction by Some Metallic Complex Salts. [1962] 10p. 8 refs.
Order from SLA $1.10 62-18216

Trans. of Nihon Kagaku Zasshi (Japan) 1939, v. 60, p. 1287-1292.

DESCRIPTORS: Catalysts, *Complex compounds, Salts, *Rhodium compounds, Chlorides, *Quinones, *Nitrites, Organic compounds, Reduction, Hydrogen, Reaction kinetics.

The studies on reduction of quinone with hydrogen in the presence of rhodium complex salts show that the unstable complex salts accelerate reduction of quinone, although the stable complex salts do not show any contact catalytic effect. Rhodium chloride shows strong catalytic effect on reduction with hydrogen of nitrite and many other substances. (Author) (See also 62-18215)

Shibata, Y. and Matsumoto, B.
REDUCTION OF QUINONE BY H_2 IN THE PRESENCE OF (Pd-en) Cl_2. Pt. 13 of Catalytic Oxido-Reduction by Some Metallic Complex Salts. [1962] [6]p.
Order from SLA $1.10 62-18215

Trans. of [Nihon Kagaku Zasshi] (Japan) 1939, v. 60, p. 1173-1176.

DESCRIPTORS: Catalysts, *Complex compounds, Salts, *Palladium compounds, *Chlorides, *Quinones, Reduction, Hydrogen, Reaction kinetics.

Tikhomolova, K. P.
ELECTROOSMOSIS AND PASSAGE POTENTIAL THROUGH DOUBLE-LAYER POWDER DIAPHRAGMS [tr. by A. L. Monks]. [1962] 16p. 25 refs.
Order from OTS or SLA $1.60 AEC-tr-5176

Trans. of Leningrad U. Vestnik (USSR) 1960, v. 15, no. 4, Ser[iya] Fiz[iki] i Khim[ii] no. 1, p. 106-116.

DESCRIPTORS: *Electroosmosis, Electric potential, Powders, Styrene plastics, Quartz, *Diaphragms (Mechanics), Liquids, Fluid flow

A marked asymmetry of the electrokinetic effects in two-layer powder membranes with different particle size in each layer has been detected. These effects depend upon the direction of the current or the motion of a liquid. Such an asymmetry can be explained by taking into account the change of physical conditions for the liquid passing through the boundary between the layers. (Author)

Topchieva, K. V., Rosolovskaya, E. N., and Sharaev, O. K.
INFLUENCE DU DEGRÉ DE DESHYDRATION DE L'OXYDE D'ALUMINIUM SUR SON ACTIVITÉ CATALYTIQUE [Effect of the Degree of Dehydration of Aluminum Oxide on its Catalytic Activity] tr. by Meyer. 6 Apr 62 [21]p. 20 refs. CEA Trans. no. R 1287 (text in French).
Order from OTS or SLA $2.60 62-33265

Trans. in French of Moscow U. Vest[nik]. [Seriya Matematiki, Mekhaniki, Astronomii, Fiziki, Khimii] (USSR) 1959 [v. 14] no. 1, p. 217-223.

DESCRIPTORS: *Catalysts, *Aluminum compounds, Oxides, Dehydration, Reaction kinetics, Methanol, Ethanol

Vdovin, Yu. A., Levich, V. G., and Myamlin, V. A.
ANODIC DISSOLUTION OF GERMANIUM. [1961] 6p. 10 refs. MDF V-136.
Order from OTS $0.50 62-11405

Trans. of A[kademiya] N[auk] SSSR. Doklady, 1959, v. 126, no. 6, p. 1296-1299.
Another trans. is available from CB $35.00 in 60-22741, 1960, 1v.

DESCRIPTORS: *Germanium, Semiconductors, *Anodes (Electrolytic cells), Electrochemistry.

An attempt is made to analyze the dissolution process quantitatively.

Vlasov, K. P.
ON THE RELATION BETWEEN THE VALUES OF THE FLAME TEMPERATURE MEASURED BY OPTICAL AND OTHER METHODS. [1960] 6p. 2 refs. MDF V-151.
Order from OTS $0.50 62-11246

Trans. of A[kademiya] N[auk] SSSR. O[tdelenie] T[ekhnicheskikh] N[auk]. Izv[estiya]: Energ[etika] i Avto[matika] 1959. no. 3. p. 100-103.

Zanker, Valentin.
LOW-TEMPERATURE ABSORPTION OF THE PHOSPHORESCENCE STATE IN THE ACRIDINE ORANGE CATION AND ITS DEPENDENCE ON THE CONCENTRATION. [1962] 8p. (figs. omitted) 8 refs.
Order from SLA $1.10 62-18396

Trans. of Zeitschrift für Physikalische Chemie (West Germany) 1956 [Neue Folge] v. 8 [no. 1] p. 20-31.

DESCRIPTORS: *Dyes, *Acridienes, Ions, *Phosphorescence, Absorption spectrum, Low temperature research.

On the singly charged acridine orange cation the triplet absorption is examined at -183°C in the concentration range 10^{-5} to 10^{-2} molar in a mixture of alcohol (96%) and ether (water-saturated). In qualitative measurements triplet bands are found in the range of from 8000 to 20,000 cm^{-1} at 8100, 8400, 8600, 9000, 9200, 9600, 10200, 10800, 11200, 12500, 12900, 13700, 14600, 15600, 16200, 18000 and 18700 cm^{-1} with different intensity. For the various concentrations, the singlet-triplet equilibrium occupation is determined under constant excitation conditions, and together with the qualitative data the quantitative triplet absorption curves are obtained. It is observed that the integral absorption and the transition probability into all triplet excitation states decreases steadily with increasing concentration. From earlier and from the present results of measurements a comprehensive level diagram is prepared which contains for dilute solutions (less than 10^{-4} molar) all hitherto known spectroscopic data from the singlet and triplet range. (Author)

Zhdanov, S. P., Kiselev, A. V., and Pavlova, L. F.
ADSORPTION OF BENZENE AND n-HEXANE VAPORS AND THEIR LIQUID SOLUTIONS BY ZEOLITES OF TYPES 10X AND 13X. [1962] 6p.
Order from ATS $9.40 ATS-42P65R

Trans. of Kinetika i Kataliz (USSR) 1962, v. 3, no. 3, p. 445-448.

DESCRIPTORS: *Benzenes, *Hexanes, Vapors, Liquids, Absorption, *Organolites.

Zhdanova, K. I., Basmanova, V. M., and Shatenshtein, A. I.
CATALYTIC ISOMERIZATION OF METHYLCYCLOPENTANE IN LIQUID HYDROGEN BROMIDE. [1962] 6p. 14 refs.
Order from OTS or SLA $1.10 62-18388

Trans. of #Zhur[nal] Obshchei Khim[ii] (USSR) 1961, v. 31 [no. 7] p. 2134-2138.

DESCRIPTORS: *Cyclopentanes, *Methyl radicals, Molecular isomerism, Reaction kinetics, Catalysts, Aluminum compounds, Gallium compounds, *Hydrogen compounds, *Bromides.

Kinetics of methylcyclopentane isomerization to cyclohexane was measured during catalysis through aluminum and gallium bromides in medium of liquid hydrogen bromide at 25 C. The reaction rate constants are proportional to the catalyst concentration, whereby the aluminum bromide is, approximately, 6 times more active than gallium bromide. Addition of 10% cyclohexylbromide to the MCP acelerates the reaction of isomerization, catalyzed by aluminum bromide, 8-10 fold. The MCP isomerization rate is by two orders greater than the deuteroexchange rate with liquid DBr under equal concentrations in aluminum bromide. The MCP isomerization in liquid hydrogen bromide catalyzed through aluminum bromide (or gallium bromide), is realized by the same mechanism which Nenicescu has proposed for explanation of MCP isomerization, catalyzed through aluminum halide hydrate; the first stage of a chain reaction is a conversion of MCP to a carbonium ion, because of separation of the hydride ion, adding to a proton of a strong acid, such as aluminum halide hydrate, and also the solution of aluminum halide (or gallium halide) in liquid hydrogen bromide. (Author)

Zinov'ev, A. A. and Zakharova, I. A.
HYDROXYLAMMONIUM PERCHLORATE. [1962] [5]p. 3 refs.
Order from OTS or SLA $1.10 62-18285

Trans. of #Zhurn[al] Neorg[anicheskoi] Khim[ii] (USSR) 1960, v. 5, no. 4, p. 775-777.

DESCRIPTORS: *Perchlorates, Ammonium radicals, *Hydroxides, Synthesis, Density, Thermochemistry.

Hydroxylammonium perchlorate was synthesized in 99.2 percent purity. Its density was determined to be $d_{20}^{20} = 1.77$. Visual-polythermal and thermographic methods show that during decomposition of hydroxylammonium perchlorate two exotherms and one endotherm occur. (Author)

Zosimovich, D. P. and Bogatova, N. F.
UTILISATION D'ANODES SOLUBLES EN Ni-Mo ET EN Ni, POUR L'OBTENTIONS D'ALLIAGES A PARTIR D'ÉLECTROLYTES ALCALINS [Use of Soluble Nickel-Molybdenum and Nickel Anodes for the Formation of Nickel-Molybdenum Alloys from Alkaline Electrolytes] tr. by de Trezvinsky. 24 Mar 62 [18]p. 13 refs. CEA Trans. no. R 1600 (text in French).
Order from OTS or SLA $1.60 62-33258

Trans. in French of #Zh[urnal] Prikl[adnoi] Khim[ii] (USSR) 1958, v. 31 [no. 3] p. 429-434.

DESCRIPTORS: *Electrochemistry, Anodes, *Nickel alloys, *Molybdenum alloys, Nickel, Electrolytes, Ammonia.

EARTH SCIENCES

ABSTRACTS FROM EAST EUROPEAN SCIENTIFIC AND TECHNICAL JOURNALS NO. 42 (EARTH SCIENCES SERIES). 7 Jan 63 [11]p. JPRS: 17006.
Order from OTS or SLA $1.10 63-13852

Consists of abstracts of articles from scientific and technical journals of Czechoslovakia and Poland.

DESCRIPTORS: *Abstracts, Literature, *Poland, *Czechoslovakia, *Meteorology, Paleoecology, Agriculture, Climatic factors, *Geodesics, Microseisms, Seismic waves, Mechanical waves, Terrestrial magnetism, Electromagnetic waves, Propagation, Ionization, Anticyclones, Satellite vehicles, Earthquakes, *Geology, Asia, Awards.

Koblents, Ya. P.
MAPPING PROGRAMS IN THE ANTARTIC IN 1961 (Plany Kartograficheskikh Rabot v Antarktike na 1961 Gody). [1962] 4p. (1 fig. omitted) 1 ref.
Order from OTS or SLA $1.10 62-24048

Trans. of Arkticheskii i Antarkticheskii Nauchno-Issledovatel'skii Institut. Informatsii Byulleten' (USSR) 1961, no. 26, p. 36-38.

DESCRIPTORS: *Antarctic regions, Terrain, *Mapping, Geography.

Voitkovskii, K. F.
THE MECHANICAL PROPERTIES OF ICE. Aug 62 [95]p. AMS-T-R-391; AFCRL-62-838; AD-284 777.
Order from OTS or SLA $8.60 62-33231

Trans. of mono. Mekhanicheskie Svoistva L'da, Moscow, 1960, 100p.

DESCRIPTORS: *Ice, *Mechanical properties, Structural properties, Crystal structure, Impurities, Single crystals, Viscosity, Experimental data, Literature.

Contents:
The structure and physical properties of ice
The basic laws of ice deformation
The elastic properties of ice
The creep of ice
The ultimate strength of ice

Climatology and Meteorology

RESEARCH ON THE DISTRIBUTION OF CHINA'S VIOLENT RAINSTORMS. 7 Jan 63 [58]p. 11 refs. JPRS: 17003.
Order from OTS or SLA $5.60 63-13857

Trans. of mono. Chung Kuo Pao Yu Fen Chu T'u Ti Yen Chiu, Peking, 1959, 19p.

DESCRIPTORS: Climatology, Scientific research, *Atmospheric precipitation, Rainfall, *Storms, Distribution, *Maps.

Bartishvili, G. S., Bibilashvili, N. Sh. and others.
THE GROWTH OF DROPLETS AND HAIL IN CUMULUS CONGESTUS CLOUDS WITH CHANGES IN VELOCITY OF THE VERTICAL FLOW WITH HEIGHT TAKEN INTO ACCOUNT AND PHYSICAL PRINCIPLES OF THE MODIFICATION OF HAIL PROCESSES. [1962] 25p.
Order from ATS $32.50 ATS-31P64R

Trans. of El'brusskaya Vysokogornaya Ekspeditsiya (1934-60). [Trudy] 1961, no. 2(5) p. 146-168.

DESCRIPTORS: *Atmospheric precipitation, *Hail, Growth, Clouds, *Cumulus clouds, *Atmospheric motion, Velocity.

Chuvaev, A. P.
SOME FEATURES OF THE SUMMER PRECIPITATION PICTURE ON THE LEEWARD SLOPES OF THE MOUNTAINS OF THE ARID ZONE OF ARMENIA. [1962] 12p.
Order from ATS $18.25 ATS-23P65R

Trans. of Gl[avnaya] Geofiz[icheskaya] Observ[atoriya, Leningrad]. Tr[udy] (USSR) 1962, no. 126[188] p. 79-89.

DESCRIPTORS: *Atmospheric precipitation, Mountains, Terrain.

Lenshin, V. T., Osipova, G. I., and Shishkin, N. S.
FORECASTING THE AMOUNT OF AIR-MASS SHOWER PRECIPITATION. [1962] 8p.
Order from ATS $10.75 ATS-18P65R

Trans. of Gl[avnaya] Geofiz[icheskaya] Observ[atoriya, Leningrad]. Tr[udy] (USSR) 1962, no. 126[188] p. 33-39.

DESCRIPTORS: *Weather forecasting, *Air mass analysis, *Atmospheric precipitation.

Sulakvelidze, G. K.
PHYSICAL PRINCIPLES OF CLOUD TREATMENT FOR THE PREVENTION OF HAIL PHENOMENA. 23 Oct 62 2 refs. AID rept. 62-176; [NASA N63-10277]; AD-288 050.
Order from OTS or SLA $1.10 63-13035

Abstract trans. of Akademiya Nauk SSSR. Doklady, 1962, v. 144, no. 4, p. 778-780.

A complete trans. is available from ATS as ATS-75P62R [1962].

DESCRIPTORS: *Atmospheric precipitation, *Hail, Control, Crystallization, Nucleation, *Clouds.

Two physically substantiated methods of preventing or mitigating hail by cloud modification are derived. The first method consists in the continuous crystallization of the entire large-droplet cloud zone, beginning at temperatures of -2° or -1° C. This method results either in the complete melting of the hailstones which have developed prior to the cloud modification or in a great diminution in the size of the hailstones in comparison with those that would have fallen in a natural course of events. The second method consists in creating a great number of large droplets at the base of the cloud in the initial stage of its development. By increasing the number of large particles serving as nuclei in the upper portion of the cloud, the mean diameters of these particles are decreased. The advantage of each method depends primarily on the height of the cloud base, the topography of the locality, etc.

Geodesy

Egorov, Yu. M.
THE PROBLEM OF RECORDING GEOMAGNETIC FIELD VARIATIONS IN THE 0.1 TO 10 cps FREQUENCY RANGE. 18 Oct 62, 2p. AID rept. 62-160; [NASA N62-17617]; AD-288 047.
Order from OTS or SLA $1.10 63-13040

Abstract trans. of #Akademiya Nauk SSSR. Izvestiya. Seriya Geofizicheskaya, 1962, no. 5, p. 677-678.

DESCRIPTORS: *Terrestrial magnetism, Magnetic fields, Frequency, Measurement, *Measuring devices (Electrical and Electronic).

Measurements of the geomagnetic field were made with a newly devised microvariation set in the 0.1- to 10-cps passband. The pickups were on a common base and oriented the same but were 1.5 meters apart. The use of separate power sources for the electric circuits eliminated the possibility of one channel influencing the other. Recording was at the rate of 12 mm/sec, each recording lasting four minutes. Pulsations of 4 to 6 cps with an amplitude of about 0.1 were recorded on the tape on a background of magnetic field pulsations with a frequency of 0.05 to 0.07 cps. A ∅ 3Y-2 photomultiplier was found to offer the best ratio of the anode current to self-generated noises. Its lower noise level made it possible to increase the sensitivity of the instrument in the 1- to 10-cps range and record magnetic-field pulsations with amplitudes less than 0.1γ.

Mishin, V. M. and Zhulin, I. A.
SOME PROBLEMS OF GEOMAGNETIC ACTIVITY. 25 Oct 62, 2p. AID rept. 62-166; [NASA N63-10275]; AD-288 048.
Order from OTS or SLA $1.10 63-13037

Abstract trans. of Geomagnetizm i Aeronomiya (USSR) 1962, v. 2, no. 3, p. 502-509.

DESCRIPTORS: *Terrestrial magnetism, *Magnetic storms, Periodic variations, Aurorae, Ionospheric disturbances.

Recent contributions of Soviet scientists to geomagnetic storm theory are summarized as follows: (1) it has been established that magnetic activity is a periodic function with a 24-hour period, and dependent on the latitude and season of the year; (2) short-period magnetic fluctuations (10 to 10^2 sec) have been shown to differ during the day and night hours; (3) statistical regularities D_i (field of irregular disturbances) should describe the correlation o of geomagnetic activity with polar auroras, with disturbances in the ionosphere, and with the space-time distribution of D_i.

Geology

Berdichevskii, M. N.
PRINCIPLES OF THE THEORY OF MAGNETOTELLURIC PROFILING. 21 Sep 62 [31]p. 13 refs. FTD-TT-62-1062; AD-287 681.
Order from OTS or SLA $3.60 63-13192

Unedited rough draft trans. of Prikladnaya Geofizika (USSR) 1960, no. 28, p. 70-91.

DESCRIPTORS: Electric fields, Magnetic fields, Terrestrial magnetism, *Electromagnetic waves, Electric currents, *Geophysical prospecting, Theory.

Budnikov, V. I.
THE RATIO OF PYRITE IRON TO ORGANIC CARBON IN ROCKS AS AN INDICATOR OF SEDIMENTATION CONDITIONS. [1962] 6p.
Order from ATS $11.00 ATS-06P65R

Trans. of Geol[ogiya] i Geofiz[ika] (USSR) 1962, no. 6, p. 96-100.

DESCRIPTORS: *Sedimentary rock, Rock (Geology), *Carbon compounds, Organic compounds, *Iron, Pyrites.

Iofis, M. A.
CALCUL DU GLISSEMENT DES COUCHES GEOLOGIQUES REPOSANT SUR DES COUCHES HOUILLIERES A PENTE RAIDE (O Raschete Sdvizheniya Gornykh Porod v Usloviyakh Krutogo Padeniya Ugol'nykh Plastov) tr. by M. Khazov. 18 Apr 62 [12]p. 3 refs. CEA Trans. no. R 1613 (text in French).
Order from OTS or SLA $1.60 62-33255

Trans. in French of Ugol' Ukrainy (USSR) 1960 [v. 4] no. 7, p. 20-23.

DESCRIPTORS: *Mining engineering, *Coal, Stratigraphy, Rock (Geology), Motion.

Lesnyak, V. F.
ON SOME GENETIC CHARACTERISTICS OF THE GRANITOIDS OF A CERTAIN REGION IN THE NORTHERN CAUCASUS, ESTABLISHED ON THE BASIS OF INCLUSIONS OF THE MINERAL-FORMING MEDIUM (O Nekotorykh Geneticheskikh Osobennostyakh Granitoidov Odnogo iz Raionov Severnogo Kavkaza Ustanovlennykh po Vklyucheniyam Mineraloobrazuyushchei Sredi). [1962] [20]p. (foreign text included) 5 refs.
Order from OTS or SLA $1.60 62-18529

Trans. of Lvov U. Uchenye Zapiski (USSR) 1955, v. 35, no. 8, Seriya Geologicheskaya, p. 162-169.

DESCRIPTORS: Rock, *Rock forming minerals, *Granite, Geology, Petrology, Solutions, Gases, *Silicon, Sandstone, Genetics.

By the analysis of inclusions of the mineral-forming medium in granitoid minerals and the later postmagmatic mineral formations which accompany the latter, the following genetic characteristics of this involved rock complex have been established. The main intrusion of so-called Eljurtian porphyritic biotite granites was formed at a relatively moderate depth. The magma proved to be very rich in volatile components. Granite-porphyries were formed near the surface, and hence the volatile components were quickly evolved from the melt.

This explains the small number of gaseous and liquid inclusions in granite-porphyry minerals. Granite-haplites appeared as a result of the intrusion of a rather fluid, silica-rich melt saturated with volatile matter; the solidification of this melt was accompanied by the repeated action of gas mixtures and highly-concentrated solutions. Solutions, playing an active part in the contamination of granitoids on contact of the latter with metamorphized sandstone-carbonate rocks, simultaneously gave rise to a rapid process of skarn-formation followed by mineralization. The principal cause of the mineralization processes was the active part of the main intrusion of porphyritic biotite granites. The solutions were emitted in continuous-intermittent pulses as a result of tectonic movements of the given portion of the earth's crust.

Mel'nik, A[natolii] A[rsent'evich].
HELICOPTER IN THE SERVICE OF GEOLOGY AND OTHER BRANCHES OF THE NATIONAL ECONOMY
17 Oct 62 [108]p. FTD-TT-62-180.
Order from OTS or SLA $9.10 63-13383

Unedited rough draft trans. of mono. Vertolet na Sluzhbe Geologii i Drugikh Otraslei Narodnogo Khozyaistva, Moscow, 1960, 83p.

DESCRIPTORS: *Helicopters, Flight speeds, Lift, Flight, Civil aviation, Air transportation, Aerial reconnaissance, Safety, Cargo vehicles, *Geology, Geophysical prospecting aerial photographic.

The basic principles of the helicopter flight are discussed and various types of helicopters are described, operated by the USSR Civil Air Fleet. Basic engineering, flight and design data are given. The use of helicopters in the country's economy is discussed. (Author)

Schleusener, A.
REMARKS ON THE FREE-AIR GRAVITY (ANOMALY) MAP OF CENTRAL EUROPE. [1962] [22]p. 33 refs.
ACIC RR-59.
Order from OTS or SLA $2.60 62-25585-2

Trans. of [Akademie der Wissenschaften, Munich. Deutsche Geodätische Kommission. Veroffentlichungen. Reihe A] (West Germany) 1955, no. 10b, p. 37-48.

DESCRIPTORS: *Maps, *Geophysics, Gravity, Europe, Geological survey, *Gravity anomalies.

Free-air gravity maps compiled from the usual, measured, free-air values which depend on the accidental position of the elevation point have no relation to isostasy. They have to be reduced to an average elevation (a common level surface) (Putnam, 1896, et al). In view of the dense survey network of Central Europe, other authors have also determined a representative value m $\Delta g'$ om for every four survey sheets (500 k m^2) from the average gravity values, from which they have then drawn isogams. The free-air anomaly and Bouguer anomaly of the Heidelberg Loch and the Neckar-Tauber anomaly are compared. The Bouguer isogams include the effect of all the disturbing masses below a reference surface (for example, sea level), while the average free-air isogams include the effect of all the masses below the average terrain elevation. Bouguer isogams are suited to provide data about unknown geological disturbing bodies and are used for economic geophysical purposes. Mean free-air isogams yield approximate data on the isostasy of an area without the need for cumbersome isostatic computations or arbitrary assumptions about the distribution of densities with depth. (Author)

Vinogradov, A. P., Sadoroshny, I. K., and Florenski, K. P.
CONTENT OF INERT GASES IN THE SIKHOTE-ALIN IRON METEORITE, tr. by Marvin W. Rowe and Gretchen R. Riese. 17 Apr 62, 15p. 9 refs.
Order from OTS or SLA $1.60 AEC-tr-5119

Trans. of Chemie der Erde (East Germany) 1958, v. 19, p. 275-285.

DESCRIPTORS: Iron, *Meteorites, *Helium group gases, Chemical analysis, Geochemistry, Geologic age determination.

Mineralogy

Cherdyntsev, V. V., Orlov, D. P. and others.
ISOTOPES OF URANIUM IN NATURAL CONDITIONS. II. ISOTOPIC COMPOSITION OF URANIUM OF MINERALS (Izotopy Urana v Prirodnykh Usloviyakh. II. Izotopnyi Sostav Urana Mineralov) tr. by Lydia Venters. May 62, 12p. 8 refs.
Order from OTS or SLA $1.60 AEC-tr-5101

Trans. of #Geokhimiya (USSR) 1961, no. 10, p. 840-848.

DESCRIPTORS: *Minerals, *Uranium, Radioactive isotopes, Radioactivity, *Natural radioactivity, Radioactive decay.

The deviation of U^{234}/U^{238} from the equilibrium state is in most cases, if not always, connected with the removal of uranium from the mineral, the uranium of solutions and of the minerals precipitated from them proving to be enriched in U^{234}, and the uranium which remained in the mineral being somewhat empoverished in this isotope. An excess of U^{234} has been detected in some endogenic minerals. In a number of cases, including such as primary visually preserved minerals a deficiency in U^{234} is observed. This bears witness of an intensive uranium migration in the zone of epigenesis. A measurable U^{235} excess may accumulate as a result of the decay of some transuranium isotope, being present in the mineral. The surplus content of U^{235} in magnetites of a pegmatite vein by 45 ± 5) and 23 ± 6) percent has been confirmed. The other minerals of this ore body have a normal isotopic composition which indicates the local pressure of transuranium emitter in the magnetite. An excess of actinium (and U^{234}) was also found in this mineral. An excess of U^{235} (of about 40 percent) was established in one of the molybdenite samples. A bond between minerals with a surplus of U^{235} and minerals with a surplus actinium is outlined but its character has not been found out. (Author)

Kudrin, S. N.
EXPERIENCE IN THE FIELD DETERMINATION OF CARBONATE ROCKS USING HYDROCHLORIC ACID OF VARYING CONCENTRATIONS. [1962] 5p.
Order from ATS $8.25 ATS-05P65R

Trans. of Razvedka i Okhrana Nedr (USSR) 1962, v. 28, no. 5, p. 47-50.

DESCRIPTORS: *Geochemistry, *Petrology, Rocks, *Carbonates, Determination, Hydrochloric acid.

Oceanography

Bezrukov, P. L. and Petelin, V. P.
EXPERIENCE IN WORKING WITH IMPACT CORE-SAMPLERS, tr. by E. R. Hope. Sep 62, 3p. 1 ref.
DSIS T 370 R.
Order from NRCC NRCC C-4169

Trans. of Akad[emiya] Nauk SSSR. Institut Okeanologii. Trudy, 1951, v. 5, p. 14-16.

DESCRIPTORS: *Marine geology, *Ocean bottom sampling, *Oceanographic equipment, Design, Operation, Sedimentation, Samplers, Boreholes.

Fedorov, K. N.
THE PYCNOCLINE IN VARIABLE CURRENTS, tr. by Wilvan G. Van Campen. Dec 61, 7p. 7 refs.
Order from OTS or SLA $1.10 62-23382

Trans. of Okeanologiya (USSR) 1961, v. 1, no. 1, p. 25-29

DESCRIPTORS: *Ocean currents, Indian Ocean, Oceanographic data, Water, Density.

The seasonal changes in the direction of the Java Coastal current are caused by the periodic alternation of onshore and offshore wind-drift as the result of changes in the monsoon winds. Evidence is presented that the pycnocline in the area actually undergoes seasonal vertical displacements. These displacements are linked with the seasonal changes in direction of the Java Current, and the assumption is made of complete or almost complete compensation of the horizontal pressure gradient in the lower layer.

Kudinov, E. I.
HYDRAULIC EXPULSION OF CORES FROM CORE-SAMPLERS, tr. by E. R. Hope. Sep 62, 3p.
DSIS T 369 R.
Order from NRCC NRCC C-4176

Trans. of Akad[emiya] Nauk SSSR. Institut Okeanologii. Trudy, 1951, v. 5, p. 11-13.

DESCRIPTORS: *Ocean bottom sampling, *Oceanographic equipment, Samplers, Operation, Sedimentation, Material removal, *Hydraulic systems, Pistons.

Physics of the Atmosphere

PHENOMENA IN THE UPPER ATMOSPHERE: REVIEW OF SOVIET LITERATURE. Monthly rept. no. 29 on Soviet Developments in Selected Problems in Astrophysics and Geophysics, AID Work Assignment no. 3. 19 Nov 62 [26]p. 21 refs. AID rept. 62-187.
Order from OTS or SLA $2.60 63-13419

DESCRIPTORS: *Atmosphere, *Solar radiation, *Ionosphere, *Van Allen radiation belt, *Cosmic rays, *Atmospheric electricity, *Arctic regions, *Antarctic regions, Communication systems, *Meteorology, *Upper atmosphere.

Contents:
Solar radiation and the ionosphere
Van Allen belts and cosmic rays
Atmospheric electricity
Arctic and Antarctic communications
Meteorology of the upper atmosphere.

Bartenev, G. M.
SUDDEN ATTENUATION OF RADIO SHORTWAVES IN THE IONOSPHERE (1938-50). 16 June 61 [13]p. 6 refs.
USASIA Trans. Log no. 1170.
Order from OTS or SLA $1.60 62-32663

Trans. of #Elektrosvyaz' (USSR) 1960 [v. 14] no. 5, p. 45-50.

DESCRIPTORS: *Radio waves, Attenuation, *Ionosphere, *Solar disturbances, Periodic variations, Wave transmission, *Radio interference, Statistical analysis.

The phenomenon of the sudden bursts of attenuated short radiowaves in the ionosphere in the sunlit zone of the Earth for two semicycles of solar activity, is studied statistically. The results of the work can be used increasing interference resistance in shortwave radio communications. (Author)

Fishkova, L. M. and Markova, G. V.
CERTAIN RESULTS OF ELECTROPHOTOMETRIC OBSERVATIONS OF THE OI, Na AND OH EMISSIONS AND THE CONTINUUM IN THE AIRGLOW. 28 Sep 62 [21]p. 18 refs. FTD-TT-62-1076; AD-287 710.
Order from OTS or SLA $2.60 63-13228

Unedited rough draft trans. of Astrofizicheskaya Observatoriya, Abastumani. Byulleten' (USSR) 1959, no. 24, p. 161-173.

DESCRIPTORS: *Sky brightness, *Continuous spectrum, Spectra (Visible and Ultraviolet), Oxygen, Hydroxides, Sodium, Atmosphere, Infrared spectra.

Observations were made on the basic airglow emissions in the visible portion of the spectrum - the emission of atmospheric oxygen at λ5577A and λλ63000-6364A, and that of atmospheric sodium at λ5890 A — as well as the airglow radiation in the continuous spectrum. Certain results of simultaneous studies of the basic night-sky emissions in the visible as well as infrared regions of the spectrum, which were obtained within the period from July 1957 to June 1958, are set forth. (Author)

Seismology

Kirnos, D. P. and Moskvina, A. G.
SEISMOGRAPHS OF INCREASED SENSITIVITY.
18 Jan 63 [13]p. JPRS: 17189.
Order from OTS or SLA $1.60 63-15123

Trans. of mono. Apparatura i Metodika Nablyudenii na Seismicheskikh Stantsiyakh SSSR (Apparatus and Method of Observations at Seismic Stations of the USSR) Moscow 1962, pt. II, chap. 3, p. 75-80.

DESCRIPTORS: *Seismographs, Design, Sensitivity, Seismic waves, Recording systems.

Details are given for modifying Soviet seismographs for the recording of volumetric seismic waves caused by earthquakes of slight and moderate intensity (E M 5--6) at comparatively great epicentral distances (over 1,000 kilometers).

Nersesov, I. L. and Riznichenko, Yu. V.
EARTHQUAKE FREQUENCY AND A SEISMIC ACTIVITY CHART, tr. by Burton J. Hobson. July 61 [12]p. 28 refs. AmMetSoc-T-R-369+.
Order from OTS or SLA $1.60 62-15685

Trans. of Seismicheskie i Glyatsiologicheskie Issledovaniya: Sbornik Statei (USSR) 1959, no. 2, p. 31-38.

DESCRIPTORS: *Earthquakes, Frequency, Distribution, *Mapping, *Seismic waves, Microseisms, Measurement.

Savarenskii, E. F., Gubin, I. E., and Kharin, D. A., eds.
EARTHQUAKES IN THE USSR, BKS. 1-2. Nov 62, 531p. 577 refs.
Order from OTS $6.00/2 bks. AEC-tr-5424(bks. 1-2)

Trans. of mono. Zemletryaseniya v SSSR, Moscow, 1961.

DESCRIPTORS: *Earthquakes, Intensity, *Seismic waves, Mechanical waves, *Seismographs, Seismological stations.

Contents:
History of development of instrumental seismic observations in the USSR, by D. P. Kirnos and others
Methods of reducing seismic observations made with instruments, by S. I. Masarskii and A. A. Treskov
Magnitude of earthquakes, by S. L. Solov'ev
Determination of the intensity scale (number) of earthquakes, by S. V. Medvedev
Intensity, magnitude, and depth of focus of earthquakes, by N. V. Shebalin
Experience in instrumental study of local earthquakes, by E. A. Koridalin and others
General review of the seismicity of the USSR, by S. L. Solov'ev
Seismicity of the Carpathian zone, by S. V. Evseev and others
The seismicity of the Crimea, by A. Ya. Levitskaya
The seismicity of the Caucasus, by E. I. Byus and others
Seismicity of the Sochi-Krasnaya Polyana region, by A. Z. Rustanovich
Seismicity of the Dzhavakhet (Alkhalkalaki) Highlands, by A. D. Tskhakaya
Seismicity of the Shemakha zone, by A. M. Bagdasarova and others
Seismicity of the Kopet-Dag zone, by N. A. Linden and E. F. Savarenskii
Seismicity of Western Turkmenia, by S. I. Masarskii

Seismic conditions of the Ashkhabad zone, by S. V. Puchkov
Earthquakes of central Asia, by N. A. Vvedenskaya
Seismicity of the Garm zone, by A. M. Bagdasarova and N. V. Kuz'mina
Seismicity of the Fergana Valley and Tashkent, by E. M. Butovskaya and A. T. Kon'kov
Seismicity of Northern Tyan'-Shan' (Tien Shan) by A. A. Fogel and I. V. Gorbunova
Earthquakes of Altai-Sayan zone, by R. I. Khovanova
Seismicity of the Baikal zone, by A. A. Treskov and K. V. Pshennikov
Earthquakes of the Far East zone, by N. A. Linden
Kurile-Kamchatka earthquakes, by N. V. Kondorskaya and R. Z. Tarakanov
Earthquakes of the Urals, by A. Ya. Levitskaya
The Seismicity of the Soviet Arctic, by N. A. Linden

ENGINEERING

QUALITY OF SOVIET MEASURING INSTRUMENTS. 16 Oct 62, 2p. AID rept. 62-165; [NASA N62-17366]; AD-287 289.
Order from OTS or SLA $1.10 63-13045

Review of Standartizatsiya (USSR) 1962 [v. 26] no. 4, p. 51-52 and no. 7, p. 11-13.

DESCRIPTORS: *Industrial production, *Precision equipment, *Machine tool industry, Gages, Manometers, Standards.

Examination of machine tools produced in Soviet manufacturing plants revealed numerous deficiencies ranging from improper finish and poor alignment to a disregard of established engineering principles. Gauges and calibrating and measuring instruments used in the production of these machine tools were then investigated, and the results for the various factories indicated that from 21% to 60% of the measuring instruments in use were inaccurate, defective, or had not been calibrated recently. A similar situation was found in the plants specializing in the production of measuring instruments. In one case, 27 of 44 manometers ready for delivery were found to be defective, and an analysis of contributing causes revealed that new manometers had been patterned after defective laboratory prototypes.

Babicheva, E. V.
REMOTE MONITORING AND CONTROL APPARATUS FOR SYSTEMS WITH DISPERSED OBJECTS. 12 Oct 62 [31]p. 2 refs. FTD-TT-62-1042.
Order from OTS or SLA $3.60 63-13703

Unedited rough draft trans. of mono. Promyshlennaya Telemekhanika, n.p., 1960, p. 218-235.

DESCRIPTORS: Control systems, *Remote control systems, *Telemeter systems, Design, Sensory mechanisms, Telemetering receivers, Monitors.

The following telemetering apparatus has been developed: (1) sensors which employ several types of sensing elements for pressure, flow rate, temperature, position of a multiposition object, etc.; (2) receivers the working principal of which enables them to be used in both cyclic and call telemetering. (Author)

Kastrov, V. V. and Rogovoi, V. M.
A GYROSCOPE WITH A FLUID ROTOR. 10 Oct 62 [4]p. FTD-TT-62-761.
Order from OTS or SLA $1.10 63-13199

Unedited rough draft trans. of Soviet patent 134453 (649943/26) 5 Jan 60.

DESCRIPTORS: *Gyroscopes, Design, Liquids, Rotation, Phosphorescent materials, Phototubes.

The gyroscope with a fluid rotor is made in the form of a spherical chamber which is filled with a fluid and can be rotated by a motor. It differs in that, in order to accomplish momentless readings, a phosphorescent fluid is used in it which is illuminated through the windows of the chamber, and a microscope with a photoelectric system is used to make the readings. (Author)

Lestev, A. M.
ON THE MOVEMENTS OF A STATICALLY BALANCED GYROSCOPE IN A CARDAN JOINT, MOUNTED ON A VIBRATING BASE. 16 Oct 62 [12]p. 2 refs. FTD-TT-62-1280.
Order from OTS or SLA $1.60 63-13697

Unedited rough draft trans. of Izvestiya Vysshikh Uchebnykh Zavedenii. Priborostroenie (USSR) 1962, v. 5, no. 1, p. 82-88.

DESCRIPTORS: *Gyroscopes, Motion, Analysis, Joints, Gimbals, Vibration, Differential equations.

Consideration is given to the motion of a gyroscope whose rotor center of inertia is displaced from the point of intersection of Cardan suspension axis---- along the main axis, and to the moment originating at a point relative to the axis of the internal ring and balanced by a corresponding displacement of the center of inertia of the internal ring in opposite direction. On the basis of analyzing solutions of differential equations pertaining to the movement of the gyroscope, it is proven that the mentioned static balancing causes practically no additional systematic departures of the gyroscope axis in the case of a gyroscope mounted on a vibrating base. (Author)

METHODS OF SELECTION AND APPROXIMATE CALCULATION OF AIR DESIGN PARAMETERS (Metody Priblizhennykh Raschetov Parametrov pri Proektirovanii Samoletov) 27 Sep 62 [116]p. 18 refs. FTD-TT-62-451; AD-287 668.
Order from OTS or SLA $9.60 63-13205

Unedited rough draft trans. of Aviatsionnyi Institut, Moscow. Trudy (USSR) 1961, v. 138, 100p.

DESCRIPTORS: *Aircraft, Design Supersonic planes, Flight speed, Civil aviation, Turbojet engines, Fuselages, Wings, Brakes, Parachutes, Landing gear, Airframes, Structural parts, Bending, Shear stresses, Numerical analysis.

Contents:
Concerning the determination of the maximum horizontal flight velocity of supersonic aircraft, by N. A. Fomin
Concerning the number of jet turbine engines on civilian aircraft, by A. A. Badyagin
Concerning an efficient slenderness-ratio for the fuselage of civil aircraft, by A. A. Badyagin
A theoretical formula for the weight of a tapered wing, by N. N. Fadeev
Optimum parameters of brake parachutes and brake wheel of aircraft, by V. S. Shishov
The trim of an aircraft with a landing gear of the tricycle type in a cross wind, by V. K. Karrask
The rigidity of cross-bar frame compressed in two directions, by E. S. Voit
Concerning the calculation of thin-sectioned, I-beam longerons in bending and the shear in bending, by A. L. Gimmel'farb.

Alferov, S. M., Mikhailov, F. A., and Stromilov, V. M.
SELF-OSCILLATIONS OF A NEUTRAL AIRCRAFT WITH AN AUTOPILOT HAVING A PULSE-ACTION SERVOMECHANISM [AND] CONCERNING THE DYNAMIC ERROR OF AUTOMATIC LONGITUDINAL STABILIZATION OF A WINGED AIRCRAFT IN A DISTURBED ATMOSPHERE. 28 Sep 62 [47]p. 7 refs. FTD-TT-62-1073; AD-287 722.
Order from OTS or SLA $4.60 63-13196

Unedited rough draft trans. of Aviatsionnyi Institut, Moscow. Trudy (USSR) 1961, no. 139, p. 71-107.

DESCRIPTORS: *Aircraft, Vibration, *Automatic pilots, Servomechanisms, Automatic, *Stabilization, Stability (Longitudinal), Errors, Atmospheric motion, Wind.

The existence condition for self-oscillations in a pulse servomechanism is satisfaction of the inequality $\frac{\dot{f} t_{\text{и}}}{2} > \varepsilon$, where ε is the dead zone, $\dot{f}$ is the maximum control-surface rate and $t_{\text{и}}$ is the duration of the first pulse-element pulse. When the pulse servomechanism is an autopilot element, the self-oscillations inherent to the pulse servomechanism are also retained in the aircraft:autopilot system. If, on the other hand, the

servomechanism does not have self-oscillations, self-oscillations whose period is the longer the farther the isolated pulse servomechanism is from the self-oscillation limit may exist in the aircraft:autopilot system. (Alferov) Consideration is given to the problem of dynamic errors of stabilization of an aircraft and quantitative characteristic are established for the longitudinal motion of the aircraft. (Mikhaylov and Stromilov)

Berezhnoi, Yu.
TRIP THROUGH HALF OF THE WORLD: SOVIET AIRCRAFT TOOK OFF FOR THE ANTARCTIC. 16 Apr 62 [8]p. FTD-TT-62-407.
Order from OTS or SLA $1.10 62-25551

Unedited rough trans. from Komsomolskaya Pravda (USSR) 1961, 16 Dec, p. 1, cols. 4-6.

DESCRIPTORS: Civil aviation, *Aircraft, *Flight testing, *Antarctic regions, Ski landing gear.

Chesalov, A. V., Romanov, M. D., and Vereiskii, V. A.
INSTALLATION FOR TESTING TURBOJET CONTROL SYSTEMS UNDER SIMULATING FLIGHT CONDITIONS. 26 July 62 [6]p. FTD-TT-62-840; AD-283 888.
Order from OTS or SLA $1.10 62-32536

Unedited rough draft trans. of [Russian] patent 141339 (694950/25) 25 Jan 61.

DESCRIPTORS: *Control systems, *Test facilities, Flight, Simulation, Test equipment, Computers, Turbojet engines.

The reproduction of engine operation by the basically controllable parameters is realized with the aid of an electronic computing device with signal power amplifier and with DC electric drive. (Author)

Gil'bert, L.
SHIPS OF THE AIR OCEAN. 29 Aug 62 [7]p. FTD-TT-62-1204.
Order from OTS or SLA $1.10 63-13186

Unedited rough draft trans. from Sovetskii Patriot (USSR) 1962, 15 July, p. 3.

DESCRIPTORS: *Civil aviation, Transport planes, Jet planes, Helicopters.

Gopp, Yu. A.
THE SUPPRESSION OF SELF-OSCILLATIONS IN A SERVOPILOT SYSTEM. 5 Sep 62 [12]p. 6 refs. FTD-TT-62-876; AD-287 721.
Order from OTS or SLA $1.60 63-13180

Unedited rough draft trans. of Izvestiya Vysshikh Uchebnykh Zavedenii. Mashinostroenie (USSR) 1961, no. 5, p. 26-32.

DESCRIPTORS: *Servomechanisms, *Automatic pilots, Vibration, Oscillation, Stabilization, Nonlinear systems.

By combining the method of harmonic balance with D-decomposition operations a zone is isolated in which it is possible to develop self-oscillations. The influence of the parameters of the system and of the pulses with respect to the derivative of the deformation of these zones is shown. The possibility of suppressing self-oscillations by introducing compensating nonlinearity is explained. The developed method of finding and suppressing self-oscillations is not limited by the order of the system and does not ignore important features of non-linear systems. In making the technical calculation, it permits us to take into consideration the sliding of the object, the imperfection of the differentiators, the inertia of the amplifiers, etc. This makes the method more broadly applicable. (Author)

Razumov, I. K.
MUFFLING THE NOISE OF TESTING STATIONS OF AIRCRAFT-ENGINE FACTORIES. 16 Oct 62 [10]p. FTD-TT-62-1277; AD-288 524.
Order from OTS or SLA $1.60 63-13187

Unedited rough draft trans. of Gigiena i Sanitariya (USSR) 1961 [v. 26] no. 1, p. 100-104.

DESCRIPTORS: *Engine mufflers, *Airplane engine noise, Test facilities, *Acoustic insulation, Aircraft industry, Noise, Reduction.

The combatting of noises at the testing stations of aircraft-engine factories is carried on by the method of collective protection against noise, and is accomplished in two ways: muffling the noise emitted from the intake and exhaust channels and sound insulation against the noises penetrating through the partitions of the test cabinets.

Terebenin, B. P.
INSTRUCTION 691-758: CONTACT PRESSING OF GLASS TEXTOLITE AIRCRAFT PARTS. 6 June 62 [44]p. FTD-TT-62-250; AD-281 513.
Order from OTS or SLA $4.60 63-13244

Unedited rough draft trans. of mono. Izgotovlenie Steklotekstolitovykh Samoletnykh Detalei Metodom Kontaktnogo [Moscow] 1958, p. 1-41.

DESCRIPTORS: *Aircraft equipment, Manufacturing methods, *Material forming, *Glass textiles, Binders, Polyester plastics, Vacuum systems, Pressure vessels, Molding, Dies, Instruction manuals.

This is a manual for contact pressing of glass textolite aircraft parts from alkali-free glass cloth with binders based on contact resins of the polyester type. These resins have a hardening temperature up to 120°C, are used without solvents and in the course of the pressing process liberate no gaseous reaction byproducts. The instructions cover the following methods: vacuum; "pressure chamber"; autoclave; compression mold with a rigid punch and die. (Author)

Vlasov-Vlasuk, O. B.
SYNCHROPHASING OF PROPELLER BLADES OF MULTI-ENGINE AIRCRAFT BY AUTOMATION.
22 Aug 62 [36]p. 2 refs. FTD-TT-62-1166; AD-287 730.
Order from OTS or SLA $3.60 63-13200

Unedited rough draft trans. of Avtomaticheskoe Regulirovanie Aviadvigatelei: Sbornik Statei (USSR) 1962, v. 4, p. 3-4 and 70-94.

DESCRIPTORS: Aircraft, Power plants, Control systems, Turbojet engines, Airplane engines, Aerial propellers, *Propeller blades, *Synchronization (Electronics), Automation.

Results are presented from investigation of certain possible schemes for synchrophasing of propeller blades by means of automation at the various disturbing actions on the engine in flight. It was assumed during the investigation that the synchrophasing system should satisfy requirements imposed on such a system as regards the accuracy of maintaining the phases only in steady conditions of aircraft flight, inasmuch as the transient conditions of flight (e. g., takeoff and climbing) command only a small part of the entire flight time. (Author)

Chemical Engineering

OIL COKING. [1962] 5p.
Available on loan from SLA 63-10371

Trans. from Neftyanoe Delo (USSR) 1903 [v. 5] no. 6.

DESCRIPTORS: *Petroleum, Organic materials, Distillation, *Coke, Production, Coal, Mineral oils.

USSR INDUSTRIAL DEVELOPMENT: SOVIET CHEMICAL INDUSTRY NO. 41. 11 Dec 62 [32]p.
JPRS: 16630.
Order from OTS or SLA $3.60 63-13518

Trans. of 10 selected articles from Sep-Oct 62 issues of 6 Russian newspapers.

DESCRIPTORS: *Industrial production, *Chemical industry, *Chemical engineering, *Chemistry, Synthetic rubber, Fertilizers, Potassium, Plastic industry, Electronic equipment, Control systems, Tires, Water supplies, Costs, Floor coverings, Electric power production, Ores, Mining engineering, Industrial equi equipment.

Contents:
Lag in production of consumer chemical products, by V. Kalechits
Lagging construction of isoprene rubber plant in Sterlitamak
Lagging construction of the Ionava nitrogen fertilizer plant, by Ya. Radis
Progress and lag in the construction of the Soligorsk potassium combine, by S. Studenyi
Electronic controls at the plastic plant imeni " "Komsomol'skaya Pravda" in Leningrad, by A. Severov
Lagging construction of aqueduct at the Leningrad tire plant, by N. Milash
Extra charges added to the price of goods, by S. Kagan
New method of producing linoleum at the Liepaya experimental linoleum plant
Shortage of electric power at the Vyborg ruberoid plant, by V. Yablonskii
Lagging production at the suburban Moscow mining and chemical combine, by P. Kazakov.

USSR INDUSTRIAL DEVELOPMENT: SOVIET CHEMICAL INDUSTRY NO. 43. 8 Jan 63 [30]p. JPRS: 17044.
Order from OTS or SLA $2.60 63-13838

Trans. of Narodnoe Khozyaistvo Uzbekistana (USSR) 1962 [v. 4] no. 9, p. 84-85; Ogonek (USSR) 1962 [v. 40] no. 44, p. 10-11; Narodnoe Khozyaistvo Kazakhstana (USSR) 1962 [v. 20] no. 8, p. 18-21; and from Pravda, Moscow (USSR) 1962, 19 Oct; Kommunist, Erevan (USSR) 1962, 10 Oct; Kazakhstanskaya Pravda (USSR) 1962, 5 Oct; Trud, Moscow (USSR) 1962, 7 Oct.

DESCRIPTORS: *Industrial production, Chemical industry, *Fertilizers, *Ores, *Paints, *Pigments, Minerals, Colors, *Tires, Cordage, Industrial plants, Phosphates, *Industrial diamonds, *Automation.

Contents:
Large deposits of agronomic ores in the USSR, by D. Shcherbakov
Mineral colors can be found locally, by M. Bodnya and M. Osovetskii
Excellent cord for Erevan tire workers, by I. Danielyan
Increased output at the Dzhambul superphosphate plant, by V. Rozhkov and N. Vesel
Shortage of baby pacifiers, by N. Kop'evskii
Artificial industrial diamonds created by Acad. Sci. USSR, by L. F. Vereshchagin
Automation for every shop in the chemical industry, by N. Zaraiskii.

USSR INDUSTRIAL DEVELOPMENT: SOVIET CHEMICAL MACHINE BUILDING NO. 13. 20 Nov 62 [11]p.
JPRS: 16271.
Order from OTS or SLA $1.60 63-13352

Trans. of VDNKH SSSR. Informatsionnyi Byulleten' [sic] (USSR) 1962, no. 11, p. 17-18; Mashinostroitel' (USSR) 1962, no. 9, p. 2; and from Ekonomicheskaya Gazeta (USSR) 1962, no. 37[58] p. 2(excerpt).

DESCRIPTORS: *Industrial production, *Chemical industry, Chemical engineering, Chemistry, Machines, Construction, Pumps, Compressors, Tires, Vulcanization, Bulldozers, Industrial equipment, Scheduling.

Contents:
The present status and development prospects of pump and compressor equipment
A new vulcanizer and a wheeled bulldozer
Construction delays.

Flemming, W.
NEW METHODS OF OBTAINING PURE GALLIUM, SELENIUM AND GERMANIUM (Nouveaux Procedes d'Obtention de Gallium, de Selenium et de Germanium Purs) tr. by Larry S. Crowley. [1962] 6p. H 8049.
Order from OTS or SLA $1.10 62-25256

Trans. of Chimie et Industrie (France) 1959 [v. 82, no. 6] p. 878-880.

DESCRIPTORS: *Gallium, *Selenium, *Germanium, Material separation, Purification.

Gallium is obtained in the form of amalgam during the electrolytic extraction of aluminum from bauxite. Selenide is found in the anodic slime from the refinement of copper. The oxidant roasting, and subsequent treatments, leaves arsenic which must be separated through distillation. The principle impurity contained in germanium chloride is also formed from arsenic. It is eliminated by distillation before transferring the compound into oxide then into metal. One last purification, done through the melting zone process, gives extremely pure germanium which the technic of semiconductors requires.

Filippov, A. A., Faingol'd, S. G., and Aizenberg, L. G.
MANUFACTURE OF POLYACRYLAMIDE IN YANOV COKE-CHEMICAL PLANT [Promyshlennoe Osvoenie Protsessa Proizvodstva Poliakrilamida na Yasinovskom Koksokhimicheskom Zavode]. [1962] [8]p.
Order from OTS or SLA $1.10 62-10254

Trans. of #Koks i Khim[iya] (USSR) 1960, no. 10, p. 7-9.

DESCRIPTORS: *Acrylamides, Molecular structure, Production, Acrylonitriles, Chemical industry, Industrial plants, Coke, Coal, Polymerization, Neutralization, Water, Purification, Hydrolysis, Separation.

Fritz, W. and Hennenhofer, J.
FLOW OF VISCOUS OILS IN CAPILLARIES AT HIGH SPEEDS OF SHEARING AND HIGH FRICTION. [1962] 19p. (figs. formulae, refs. tables omitted).
Order from SLA $1.60 62-16983

Trans. of [Chemie-Ingenieur-Technik] (West Germany) 1947, v. 19, no. 5/6, p. 135-142.

DESCRIPTORS: *Capillary tubes, *Oils, *Viscosity, *Fluid flow, Friction, Shear stresses.

Graetz, Andre.
THE CRACKING OF PETROLEUMS [PT. II]. [1962] 35p. 19 refs.
Available on loan from SLA 63-10461

Trans. of Chimie et Industrie (France) 1930 [v. 24, no. 3] p. 526-545.

DESCRIPTORS: *Petroleum, Organic materials, *Hydrocarbons, Catalysts, Catalysis, Vapor pressure, Hydrogenation, Petroleum industry, Refineries, Gasoline.

(See also 63-10461)

Kaganov, S. A., Levinter, M. Kh., and Medvedeva, M. I.
KINETICS OF ASPHALTENE COKING. [1962] 8p.
Order from ATS $10.00 ATS-28P65R

Trans. of Khim[iya] i Tekhnol[ogiya] Topliv i Masel (USSR) 1962, v. 7, no. 7, p. 38-43.

DESCRIPTORS: *Bitumens, Asphalt, Coke, Reaction kinetics.

Khvatkov, N. M. and Makienko, V. F.
APPLICATION OF ULTRASONICS TO SCALE BREAK-UP IN HEAT EXCHANGE APPARATUS. [1962] 6p.
Order from ATS $9.00 ATS-25P65R

Trans. of #Koks i Khim[iya] (USSR) 1961, no. 6, p. 46-49.

DESCRIPTORS: *Heat exchangers, *Scale, Material removal, *Ultrasonics

Kokurin, A. D., Obrezkov, V. D., and Kolodin, E. A.
EFFECT OF SIZE OF MOVING ELECTRODES IN THE ELECTROCRACKING OF LIQUID PRODUCTS. [1962] 4p.
Order from ATS $6.25 ATS-27P65R

Trans. of #Zh[urnal] Prikl[adnoi] Khim[ii] (USSR) 1962, v. 35, no. 6, p. 1379-1382.

DESCRIPTORS: *Electrodes, Motion, Sizing, Liquids, *Electrolysis, Decomposition.

Kubelka, Paul.
PROCESS FOR OBTAINING PURE CUPRIC OXYCHLORIDE, tr. by J. R-P. 30 Oct 62, 5p.
Order from OTS or SLA $1.10 62-33776

Trans. of French patent 881,578, gr. 14, cl. 1, appl. filed 28 Apr 42, granted 28 Jan 43, pub. 29 Apr 43 (priority claimed in Germany from 5 May 41).

DESCRIPTORS: *Copper compounds, *Oxychlorides, Production, *Fungicides.

A process is described for obtaining cupric oxychloride from suspensions in cupric chloride solution. After having effected the mechanical separation of the cupric oxychloride, this latter is intimately mixed in a moist state, while it still contains cupric chloride, with cupric oxide or hydroxide and possibly lightly heated. (Author)

Pis'men, L. M. and Ioffe, I. I.
CALCULATION OF THE OPTIMUM CONDITIONS OF CHEMICAL REACTORS BY A DYNAMIC PROGRAMMING METHOD. [1962] 16p.
Order from ATS $19.00 ATS-32P65R

Trans. of Khim[icheskaya] Prom[yshlennost'] (USSR) 1962, no. 5, p. 352-359.

DESCRIPTORS: Reactors, *Towers (Chemistry), Operation, *Programming.

Salamon, M. and Svitok, P.
A LOW FREQUENCY ELECTRODELESS CONDUCTOMETER FOR MEASURING THE ELECTRICAL CONDUCTIVITY OF SOLUTIONS, tr. by L. H. Sinclair. 1959 [12]p. 4 refs. IGRL-T/CA-108; AD-212 453L.
Order from OTS or SLA $1.60 62-32395

Trans. of Chemicky Prumysl (Czechoslovakia) 1956, v. 6(31) p. 10-14.

DESCRIPTORS: *Measuring devices (Electrical and electronic), Low frequency, Electric bridges, Circuits, *Electrochemistry, Solutions, Electrolytes, Electrical conductance.

An LF electrodeless conductometer with induction coupling was theoretically deduced and proven for measuring electrolyte resistance. A closed circuit of electrolytic conductor was made by filling an insulating tube with the test electrolyte. This coil was linked with the magnetic field of an exciting transformer; a current appeared in the electrolyte which was caused by the voltage of the transformer through one coil and by the circuit resistance. A second transformer was used to measure the current to which a voltmeter was attached. The deflection of the voltmeter at constant voltage and frequency of the applied alternating current was directly proportional to the measured conductivity. Greater convenience was achieved by the addition of a compensating circuit. Compensation of temperature effect was achieved via the use of a Wheatstone bridge. The exciting voltage, the total resistance of the electrolyte, the constant of the measuring transformer, the sensitivity of the null indicator (used in the compensating circuit) and the Wheatstone bridge all combined to give the sensitivity of measurement. The constructed prototype measured brine concentration successfully. The instrument, used mainly in connection with inorganic chemistry, is regarded as not convenient for laboratory use because of its large size. (Author)

Schenck, H. and Perbix, G.
REMOVAL OF COPPER FROM PIG IRON AND LEAD BY THE USE OF SODIUM SULFIDE SLAGS. Dec 62, 3100 words.
Order from HB $7.75 HB-5708

Trans. of Archiv f[ür] d[as] Eisenhüttenwesen (West Germany) 1962, v. 33, no. 7, p. 417-420.

DESCRIPTORS: *Slags, *Sulfides, Sodium compounds, *Lead, *Cast iron, Separation, *Copper.

Tishchenko, D. and Fleisher, S.
ORGANIC VISCOSITY REDUCERS IN CLAY SOLUTIONS [1962] 13p. 10 refs.
Order from OTS or SLA $1.60 62-18374

Trans. of #Zhur[nal] Priklad[noi] Khim[ii] (USSR) 1962, v. 35 [no. 3] p. 638-647.

DESCRIPTORS: *Drilling fluids, *Clays, Viscosity, Reduction, *Organic solvents, Molecular Structure, Theory.

An hypothesis is proposed on the relationship between the chemical structure of organic compounds and the mechanism of their action as viscosity reducers for clay solutions. Experimental verification of the hypothesis has shown its agreement with fact. (Author)

Trivus, N. A.
SOLUBILITY OF GAS IN PETROLEUM AT HIGH PRESSURES. [1962] 7p.
Order from ATS $9.75 ATS-08P65R

Trans. of Gaz[ovaya] Prom[yshlennost'] (USSR) 1962, v. 7, no. 6, p. 9-13.

DESCRIPTORS: *Petroleum, *Gases, Solubility, High pressure research.

Tyurenkova, G. N., Silina, E. I. and others.
PROCESS OF FLOTATION OF OXIDIZED CARBONACEOUS OR SILICEOUS COPPER MINERALS, tr. by L. H. 14 Sep 62, 2p.
Order from OTS or SLA $1.10 62-33232

Trans. of USSR Author's certificate 127, 962, cl. 1c, 8/01, appl. 7 Oct 59, pub. 28 Apr 60 (pub. in Byulleten' Izobretenii (USSR) 1960, no. 9).

DESCRIPTORS: *Minerals, *Copper, Carbon, Dioxides, Silicon compounds, Chemical reactions, *Flotation.

1- phenyl-2-mercaptobenzimidazole is used as reagent-collector in flotation of oxidized carbonaceous or siliceous copper minerals, without preceding sulfidization of said minerals. (Author)

Willcockson, G. W. and Steinberg, H.
PRODUCTION OF BORON-CARBON COMPOUNDS. [1962] [25]p.
Order from OTS or SLA $2.60 62-16343

Trans. of Belgian patent 563, 585 by United States Borax and Chemical Corp., appl. deposited 28 Dec 57, granted 15 Jan 58 (appl. USA, 12 Apr 57).

DESCRIPTORS: Organic compounds, *Boron compounds, Carbon compounds, Production, Sodium compounds.

Civil Engineering

Bondarenko, A.
THE EFFECT OF ROAD CONDITIONS ON THE EFFICIENCY OF ROAD TRANSPORT (Vliyanie Doroshnykh Uslovii na Effektivnost' Raboty Avtomobil'nogo Transporta) tr. by R. C. Halsall. Sep 61 [7]p. DSIR Library Communication no. 998; NLL M. 3614.
Order from OTS or SLA $1.10 62-25283

Abbreviated trans. of Avtom[obil'nyi] Transp[ort] (USSR) 1961, v. 39, no. 3, p. 30-32.

DESCRIPTORS: *Roads, *Transportation, Traffic, Fuel consumption, Bituminous surfacing.

Gustafson, J. O. H.
ARRANGEMENT FOR FASTENING TWO BUILDING ELEMENTS TO EACH OTHER, tr. by J. B. 11 Sep 62, 5p. (figs. omitted).
Order from OTS or SLA $1.10 62-33249

Trans. of Swedish patent 121,639, cl. 37b:5/01, pat. from 16 May 46, granted 11 Mar 48, pub. 11 May 48.

DESCRIPTORS: *Prefabricated buildings, *Fastenings, Locking fastener devices, Structural parts, Construction.

The arrangement is characterized in that one element has an opening with an outwardly arranged constriction through which can be introduced a projection of the other element, which projection, at its outer portion, on one or on both sides, is provided with a longitudinal groove or with a plurality of recesses, and in that a spring band or similar element provided with locking members, for example blocks or catches, is so arranged on the projection that, when the latter is led through the constriction, the locking members snap into the grooves or recesses, but after passing the constriction are brought to rest against the inner sides of the constriction owing to spring force, so that the locking members prevent removal of the projection from the opening.

Kabulov, V. K.
USING HIGH-SPEED ELECTRONIC CALCULATING MACHINES IN DESIGNING INDUSTRIAL AND PUBLIC BUILDINGS. 29 Jan 62 [9]p. 2 refs. JPRS: 12185.
Order from OTS or SLA $1.10 62-15670

Trans. of Akademiya Nauk Uzbekskoi SSR, Tashkent. Izvestiya. [Seriya Tekhnicheskikh Nauk] 1961, no. 3, p. 66-70.

DESCRIPTORS: *Digital computers, Computers, Scheduling, *Civil engineering, *Buildings, Structures, Elasticity, Plasticity, Design.

Electrical and Electronic Engineering

ABSTRACTS FROM EAST EUROPEAN SCIENTIFIC AND TECHNICAL JOURNALS NO. 45 (ELECTRONICS, ENGINEERING, AND SPACE RESEARCH SERIES). 9 Jan 63 [9]p. JPRS: 17074.
Order from OTS or SLA $1.10 63-13834

Consists of abstracts of articles from the scientific and technical journals of Rumania and Yugoslavia.

DESCRIPTORS: *Abstracts, *Electronics, Engineering, Literature, *Rumania, *Yugoslavia, *Telephone communication systems, Automatic, Switching circuits, Magnetic cores, Circuits, Telephone equipment, Acoustics, Synthesis, Radio receivers, Atmospheric refraction, Commutators, Telegraph systems, Amplifiers.

ABSTRACTS FROM EAST EUROPEAN SCIENTIFIC AND TECHNICAL JOURNALS NO. 48 (ELECTRONICS, ENGINEERING, AND SPACE RESEARCH SERIES). 14 Jan 63 [12]p. JPRS: 17127.
Order from OTS or SLA $1.60 63-15097

Consists of abstracts of articles from the scientific and technical journals of East Germany and Poland.

DESCRIPTORS: *Abstracts, Literature, *East Germany, *Poland, *Electronics, Engineering, Cybernetics, Electron tubes, Wattmeters, Band-pass filters, Signals, Distortion, Electric bridges, Voltage amplifiers, Telephone communication systems, Soldering, Resistors, Cylindrical bodies, Membranes, Elasticity, Metal plates, Iron, Carbon, Solutions, Thermodynamics, *Mechanics.

AUTOMATION. 4 Dec 62 [69]p. 17 refs. FTD-TT-62-813.
Order from OTS or SLA $6.60 63-13681

Unedited rough draft trans. of Avtomatyka (USSR) 1961, no. 1, p. 3-24, 26-31, 33-45.
Another trans. of all articles is available from OTS or SLA $6.60 as 62-23776, JPRS-13268, 27 Mar 62 [66]p.

DESCRIPTORS: *Automatic, Control, Theory, *Control systems, Stability, Feedback, Operation, Corrections, Inertia, Errors, Synthesis, Functions, Differential equations.

Contents:
Association of invariance theory with the theory of differential regulators, by O. G. Ivakhnenko
The equivalence condition of systems of differential equations and disturbance control systems, by O. M. Kostyuk
Designing automatic systems stable with respect to disturbances, by M. M. Chumakov.

FERRITE ONE-WAY ATTENUATOR FOR 3 CM WAVES. 3 Aug 60 [58]p. 10 refs. USASIA: H-6541; JPRS: R-1056-D.
Order from OTS or SLA $5.60 60-31431

Trans. of a rept. from Institute of High-Frequency Technology, Tech[nische Hochschule] Vienna, Jan/Feb 58.

DESCRIPTORS: *Ferrites, *Attenuators, X-band, *Microwaves, High frequency, *Permeability (Magnetic), Resonance, Modulators, Amplitude modulation, Tensor analysis.

This is a theoretical and practical study of X-band isolators. The first section contains the theoretical considerations on both kinds of isolators which are based on the existence Polder's permeability tensor. In addition the derivation of a method for the determination of the permeability tensor feasible at the institute is given. In the second part which deals with the measurements, the studies preliminary to the measurements proper were treated in considerable detail because this is the first study of the institute on ferrite applications. There follow the description of the measurements on resonance and field displacement isolation and the corresponding

diagrams. At the end of the second part the result of the measurement of the tensor components is given, which were carried out by a resonator method and the use of a magic T. The practical result of the study are a resonance isolator, which can also be used as an amplitude modulator, and a field displacement isolator. (Author)

NEWS OF THE ACADEMY OF SCIENCES SSSR, DEPARTMENT OF TECHNICAL SCIENCES, POWER ENGINEERING AND AUTOMATION 1961, NO. 5: SELECTED ARTICLES. 19 Oct 62 [58]p. 33 refs. FTD-TT-62-871, AD-287 732.
Order from OTS or SLA $5.60 63-13177

Unedited rough draft trans. of Akademiya Nauk SSSR. Otdelenie Tekhnicheskikh Nauk. Izvestiya: Energetika i Avtomatika, 1961, no. 5, p. 7-12, 25-37, 113-122.

DESCRIPTORS: *Automation, *Control systems, Operation, Stability, Differential equations, Operators (Mathematics), Matrix calculus, Determinants, Perturbation theory, *Stabilization systems, Reproduction, *Transients, *Relays, Linear systems, Nonlinear systems.

Contents:
On polyinvariance in automatic control systems, by V. S. Kulebakin and O. I. Larichev
On variance of stabilization and reproduction systems relative to several disturbances, by V. S. Kulebakin and V. D. Vershinin
Analysis of transient and steady-state processes in pulse-relay and minimax systems with constant and variable control periods, by V. M. Kuntsevich.

SPEECH AND FREQUENCY COMPRESSION: BIBLIOGRAPHY. [1960] 9p. MDF BIB-1.
Order from OTS $0.50 62-11523

Includes location of translated material or of the original where known.

DESCRIPTORS: *Speech transmission, Speech, Communications systems, *Bibliography.

USE OF POLYCARBONATES WITH HIGH MOLECULAR WEIGHT AS INSULATING ELECTRICAL MATERIALS. 23 Nov 56, 5p.
Order from OTS or SLA $1.10 62-16341

Trans. of Belgian patent 538,768 by Farbenfabriken Bayer AG., filed 6 June 55 (International Convention: German patent appl. 1 July 54).

DESCRIPTORS: *Insulating materials, *Electric insulation, Carbonates, Polymers, Molecular weight.

USSR ELECTRIC POWER TRANSLATIONS NO. 28. 7 Dec 62 [57]p. JPRS: 16569.
Order from OTS or SLA $5.60 63-13531

Trans. of Energetik (USSR) 1962 [v. 10] no. 8, p. 1-4, 34-35, 38-40; no. 9, p. 1-4; Teploenergetiak (USSR) 1962 [v. 9] no. 9, p. 7-9 and 86-88; Elektricheskie Stantsii (USSR) 1962 [v. 33] no. 9, p. 2-7; and 3 selected articles from Sep-Oct 62 issues of 3 Soviet newspapers.

DESCRIPTORS: *Electric power production, *Power supplies, Boilers, Steam, Turbines, Water, Transmission lines, *Hydroelectric power systems, Thermoelectricity, *Electrical equipment, Maintenance, *Electrical engineering, Fuels, Economics, Power, Industrial production, Thermoelectric generators, Electrical industry, Electrical networks, Electric machinery, Automation, Digital computers.

Contents:
Heat engineering
In the All-Union Main Electric Power Administration at the State Planning Commission, USSR
We must successfully complete capital repairs of the equipment
On the use of new fuel prices when calculating the effectiveness of the new technological measures in electric power engineering, by A. Ya. Avrukh
On the erroneous theoretical positions and incorrect economic calculations of Z. F. Chukhanov on electric power, by A. G. Zakharin and others
Communications on electric power
Joint work on electrification of Central Asian Republics, by A. N. Rudin
Starg--Beshevskaya State regional electric power station, by T. Ya. Lipovetskii
Automation and telemechanics
For the unified electric power system of Transcaucasia

USSR INDUSTRIAL DEVELOPMENT: SOVIET ELECTRICAL EQUIPMENT NO. 29. 3 Dec 62 [24]p. JPRS: 16477.
Order from OTS or SLA $2.60 63-13343

Trans. of Mekhanizatsiya i Avtomatizatsiya Proizvodstva (USSR) 1962 [v. 16] no. 7, p. 56 and 10 selected articles from 7 Russian newspapers.

DESCRIPTORS: *Industrial production, *Electrical equipment, Machines, *Industrial plants, Electrical engineering, Electric motors, Supplies, *Electric power production, Power plants, Washing machines, Cargo vehicles, Wire, Vibrators (Electrical).

Contents:
Khar'kov electrical machinery plant falls behind in first eight months
Dnepropetrovsk electrical machinery plant modernizes working environment, by G. Drobot and A. Sakharov
A review of the work done by the All-Union Electrical Engineering Institute imeni Lenin
Young Ust'-Kamenogorsk electrical equipment plant forges ahead
Vladimir electrical-motor plant rapidly expanding production for both domestic and foreign markets
Supply delays disrupt production at Ural electrical equipment plant, by G. Petelin and others
Until the advent of atomic power the earth will feed our new giant thermoelectric plants, by V. Glebov
New turret-type washing machine units for Leningrad laundries

Batumi power truck plant to be rebuilt in 1963 as largest in country
Three-year-old Tskhinvali enamel-wire plant rapidly upping output with young workers
Tskinvali electrovibrating machine plant output in wide demand at home and abroad.

USSR INDUSTRIAL DEVELOPMENT: SOVIET PRECISION EQUIPMENT NO. 46. 10 Dec 62 [37]p. JPRS: 16597.
Order from OTS or SLA $3.60 63-13477

Trans. of Promyshlennost' Armenii (USSR) 1962 [v. 5] no. 7, ##p. 46-47; no. 9, p. 49-53, 58-59; Ogonek (USSR) 1962 [v. 40] no. 32, p. 20-21.
##Another trans. is available from OTS or SLA $3.60 in 63-13079, JPRS-16159, 13 Nov 62 [40]p.

DESCRIPTORS: *Precision equipment, *Industrial production, *Electric relays, Electrical equipment, *Television receivers, Electronic equipment, Electrical engineering, *Semiconductor devices, Heat transfer, Industrial plants, Students, Training.

Contents:
##The RTN bimetallic-strip thermal heating relay
TV sets will be improved
Methods of selecting and designing heat sinks for semiconductor devices, by A. Karapetyan
Reorganization of polytechnical training in Armenian secondary schools to strengthen school-plant ties, by S. Tarayan.

USSR INDUSTRIAL DEVELOPMENT: SOVIET PRECISION EQUIPMENT NO. 47. 10 Dec 62 [36]p. JPRS: 16609.
Order from OTS or SLA $3.60 63-13475

Trans. of Byulleten' Tekhniko-Ekonomicheskoi Informatsii (USSR) 1962, no. 8, p. 45-48; Avtomatika i Priborostroenie (USSR) 1962 [v. 1] no. 3, p. 51-53, 60-65, 85-86; and from Ekonomicheskaya Gazeta (USSR) 1962, no. 36[57] p. 15.

DESCRIPTORS: *Industrial production, *Electrical equipment, *Electric machinery, Vibration mechanisms, Metal detectors, Temperature, Control, Automation, Instrumentation, *Electrical industry, *Electronic equipment, Transformers, Electric potential, Measuring instruments (Electrical and Electronic), Design.

Contents:
Technological improvements in instrument making result in lower costs, by N. Skvortsov
The VPU-1 portable vibrometer, by V. P. Privezentsev
The MT6 transistorized metal locator, by E. L. Kritskii and M. N. Minster
The RTM temperature regulator used in canning industry, by A. Ya. Shapiro and N. Ya. Epshtein
Kiev precision electrical equipment plant expands assortment to meet growing needs, by E. D. Bondarenko
A new class 0.1-accuracy voltage transformer designed by Kiev plant, by B. A. Globa
Khar'kov plant designs small secondary indicating instrument with a ferrodynamic compensator, by Yu. V. Erofeev.

Atrazhev, M. P. and Dykhenko, L. M.
A METHOD AND A DEVICE FOR DETERMINING THE LAW OF DISTRIBUTION OF TIME POSITION OF PULSES BY OSCILLOGRAPHIC MEANS. 4 June 62[5]p. FTD-TT-62-469.
Order from OTS or SLA $1.10 62-32515

Unedited rough draft trans. of Soviet patent 136798, (673266/26) 14 July 60.

DESCRIPTORS: *Pulse counters, Cathode ray tubes, *Oscillographs, Pulse height analyzers, Probability, Distribution.

This method has the following special feature: to determine the time position of each pulse of the investigated pulse train, the pulses of this train are gated by pulses whose duration varies in proportion to the horizontal-scan voltage of the cathode-ray tube; the gated pulses are then normalized and summed by the storage counter; the voltage proportional to the given number of investigated pulses is used to deflect the beam of the tube vertically. To obtain the differential law of distribution of the time position of pulses we use gating pulses of constant duration; the position of the leading edge of these pulses changes synchronously with a change in the horizontal-scan voltage of the beam of the cathode-ray tube. The device contains a cathode-ray tube and a storage capacity pulse counter with a reset unit. Its special feature is that it employs a coincidence stage whose input is connected to the sources of the gating pulses and the investigated pulse train; its output is connected across the normalization circuit and the pulse counter to the vertical deflection plates of the cathode-ray tube. The scan voltage of the tube is proportional to the duration or position of the leading edge of the gating pulse. (Author)

Belkin, B. G.
NEW NOISE VOLTAGE GENERATOR [Novyi Generator Shumovykh Napryazhenii. [1961] 4p. MDF B-108.
Order from OTS or SLA $1.10 62-23062

Trans. of Radiotekhnika (USSR) 1955, v. 10, no. 4, p. 56-58

DESCRIPTORS: *Noise generators, Voltage, *Noise (Radio).

A generator is described for which the output signal is a noise band of any relative width prescribed in advance, capable of continuous displacement over the audio frequency range. The device operates on the principle of reproducing the recording of a noise band with variable speed. (Author)

Dmitrieva, L. N.
A METHOD FOR DETERMINING THE CHARACTERISTIC IMPEDANCES AND DEGREE OF MISMATCH OF TWO-TERMINAL PAIR NETWORKS. 11 Oct 62 [5]p. FTD-TT-62-481.
Order from OTS or SLA $1.10 63-13202

Unedited rough draft trans. of Soviet patent 132716 (652042/26) 25 Jan 60.

DESCRIPTORS: *Electrical networks, *Electrical impedance, Impedance, *Electric terminals, Phase shifters, Cathode followers

The degrees of mismatch are determined by the difference between the phase shifts obtained when conecting a two-terminal pair network and its load in parallel with the load of a cathode follower. The characteristic impedance is determined by the impedance of the load of the two-terminal pair network at which there is no difference between the phase shifts.

Fel'dbaum, A. A.
SYSTEMS OF AUTOMATIC OPTIMIZATION. Pt. II of New Principles of Automatic Control. 7 June 62 [22]p. 10 refs. MCL-1273.
Order from OTS or SLA $2.60 62-25760

Unedited rough draft trans. of Izvestiya Vysshikh Uchebnykh Zavedenii. Radiotekhnika (USSR) 1960 [v. 3] no. 4, p. 419-430.
Another trans. is available from OTS $3.00 in 61-21442 JPRS-7381, 13 Mar 61, 193p.

DESCRIPTORS: Automatic, Control, *Control systems, Adaptive control systems, Synthesis, Digital computers, Computer logic, Differential equations.

Gaplichuk, O. M.
SCIENTIFIC-TECHNICAL CONFERENCE ON THE USE OF SEMI-CONDUCTING INSTRUMENTS. [1960] 3p. MDF RECON-4.
Order from OTS $0.50 62-11528

Trans. of Izvestiya V[ysshikh U[chebnykh] Z[avedenii]. Radiotekhnika (USSR) 1960, v. 3, no. 1, p. 133-134.

DESCRIPTORS: *Electronic equipment, *Semiconductors, Instrumentation, Conferences.

Inosov, V. L. and Skirta, B. K.
ESTIMATING THE COMBINATION-FREQUENCY LEVEL AND THE ADMISSIBLE FLUCTUATION IN THE LEVEL OF REMOTE-CONTROL FREQUENCY CODE SIGNALS SENT SIMULTANEOUSLY. 27 Apr 62 [16]p. 1 ref. FTD-TT-62-661.
Order from OTS or SLA $1.60 62-32302

Unedited rough draft trans. of #Avtomatika i Telemekhanika (USSR) 1962, v. 23, no. 2, p. 214-221.

DESCRIPTORS: *Remote control systems, Frequency, Coding, Signals, Transmission, Attenuation, *Communication systems, Pulse transmitters, Harmonic analysis, Series.

In order to determine the combination-frequency level, we can use a method of expanding the pulsation envelope into harmonic components. The applicability of parallel frequency transmissions is determined by the degree of nonlinearity of the communication channel, by the variation in the attenuation of the signal during operation and by the dispersion of the threshold of operation of the frequency selectors. At known (e.g., from experiment) combination-frequency levels the admissible distance over which remote-control signals can be transmitted by means of parallel frequencies can be determined by a simple engineering calculation. (Author)

Jung, Max and Langer, Norbert.
SUPER LONG RANGE BEAM COMMUNICATIONS IN THE 2,000 MC DECIMETER WAVE BAND (Überreichweiten-Richtfunk im Dezimeterwellenbereich um 2000 MHz) tr. by H. H. [1962] [9]p. (figs. omitted). H-9381.
Order from OTS or SLA $1.10 62-25202

Trans. of reprint from Siemens [Zeitschrift] (West Germany) 1959, v. 33, no. 5, p. 305-310.

DESCRIPTORS: *Communication systems, *Radio communication systems, Radio transmission, Radio beams, Troposphere, Scattering, Radio equipment.

Kao, Yu-kan.
DETERMINATION OF THE SCREENING COEFFICIENT OF A CABLE SHEATHING. 22 June 61 [9]p. 5 refs. USASIA Trans. Log no. 1180.
Order from OTS or SLA $1.10 62-32660

Trans. of #Elektrosvyaz' (USSR) 1960 [v. 14] no. 2, p. 66-70.

DESCRIPTORS: *Cables, *Electromagnetic shielding, Electric insulation, Equations, Determination, Resistance, Inductance.

A general equation is given for the determination of the screening coefficient of a cable sheathing taking into account the resistance between the sheathing and ground, and the resistance between the sheathing and ground at the ends of the cable. (Author)

Krasovskii, A. A.
OPTIMUM METHODS OF SEARCHING IN CONTINUOUS AND PULSED SYSTEMS OF EXTREMAL CONTROL. 25 May 62 [25]p. (4 figs. omitted) 10 refs. FTD-TT-62-747.
Order from OTS or SLA $2.60 62-25757

Unedited rough draft trans. of mono. Optimal'nie Metody Poiska v Nepreryvnykh i Impul'snykh Sistemakh Ekstremal'nogo Regulirovani [pub.] by Akademiya Nauk SSSR, n.d., 18p.

DESCRIPTORS: *Control systems, Synthesis, Tuned circuits, Oscillation, Operational calculus, Adaptive control systems.

Kugushev, A. M.
COSMIC RADIO ELECTRONICS. [1960] 9p. MDF K-239.
Order from OTS $0.50 62-11325

Trans. of Radio [Moscow] (USSR) 1960, no. 11, p. 9-12

DESCRIPTORS: *Space communication systems, Radio astronomy, *Satellite vehicle, Research, Communication satellites (Active), Communication satellites (Passive), *Space ships, Control systems, Radio, Television, Antennas.

Li, Hsien-fa and others.
STUDIES ON GASEOUS FUEL CELLS, I-II. 12 Sep 62 [38]p. 19 refs. FTD-TT-62-502.
Order from OTS or SLA $3.60 63-13223

Unedited rough draft trans. of Wu Han Ta Hsüeh Tzu Jan K'o Hsüeh Hsüeh Pao (Chinese People's Republic) 1959, no. 5, p. 1-22.

DESCRIPTORS: *Fuel cells, Construction, Electrical properties, Electrolytes, Electrochemistry, Gases, Fuels.

A fuel cell was constructed using laboratory gas as the gaseous fuel, and air instead of oxygen as the solid electrolyte. Tests were conducted on 4 mixed differently in portions as the solid electrolytes and 18 kinds of different anode substances. In its final form, the cell had a working temperature of around 620°C, an initial voltage of 2 volts, an electrical density of greater than 200 milliampere/square cm, and a maximum power of 249 watt/square ft.

Liu, Lan-po.
THE RAPID INCREASE OF ELECTRIC-POWER CAPABILITY IN NEW CHINA. 20 June 61, 2p. AID rept. 61-94; AD-260 424.
Order from OTS or SLA $1.10 63-13873

Abstract trans. of Elektrie (Germany) 1960 [v. 14] no. 1, p. 3-4.

DESCRIPTORS: *Electric power production, Power plants, China, Transmission lines, Electricity, Economic conditions.

Progress is reported on electric power production in China. Results of the first five year plan are discussed, as well as developments in 1958 and 1959. Statistics are given and locations of some new plants are mentioned.

Lukoshkov, V. S., Bondarev, A. S., and Shvetsov, B. N.
INVESTIGATION OF THE ELECTROMAGNETIC FIELD OF CAVITIES BY USING A PROBE WITH A HIGH-IMPEDANCE SUPPLY. [1961] 21p. 3 refs. MDF L-114.
Order from OTS or SLA $2.60 62-23098

Trans. of Radiotekh[nika] i Elektr[onika] (USSR) 1956, v. 1, no. 4, p. 497-511.

DESCRIPTORS: *Electromagnetic fields, Probes (Electromagnetic), *Cavity resonators, Waveguides.

A method of investigating the electromagnetic field distribution in cavities of arbitrary shape using a probe with a high-impedance supply is explained in this paper. The probe, located with a miniature detector at a point of the field being studied, is an electric or magnetic dipole of very small size connected through a low-frequency high-impedance conductor to an indicater outside the cavity being studied. The method is suitable to investigate fields excited in cavities by resonant or nonresonant frequencies and it guarantees accuracy of the order of 5 percent. (Author)

Marshak, I. S., Vasil'ev, V. I. and others.
HIGH-POWER GAS-DISCHARGE LAMP. 15 Nov 62 [5]p. FTD-TT-62-295.
Order from OTS or SLA $1.10 63-13907

Unedited rough draft trans. of Soviet patent 141219 (667345/24) 20 May 60.

DESCRIPTORS: *Gas discharges, *Xenon lamps, Design, Operation, *Discharge tubes, Quartz, Plasma physics, Light, Sources.

A high-power gas-discharge lamp, for instance a xenon lamp, with a quartz discharge tube is described. It differs in the fact that, for the purpose of operating the lamp without the use of an external current-limiting resistance, the basic parameters of the discharge tube are chosen as functions of the effective resistivity of the plasma in the discharge column and the specific carrying capacity of the inner surface of the quartz tube in accordance with the relationship:

$$\frac{D}{l^2} = \frac{4\rho}{U^2} P_{sp},$$

where D (cm) is the inner diameter of the tube; l (cm) is the distance between the electrodes; ρ (ohms/cm) is the effective resistivity of the plasma in the discharge column; P_{sp} (w/cm^2) is the specific carrying capacity of the inner surface of the quartz tube; U (v) is the effective voltage. (Author)

Mitrakovic, B., Despotovic, S. and others.
WORK OF THE NIKOLA TESLA ELECTRO-TECHNICAL INSTITUTE IN BELGRADE IN 1961. 27 Nov 62 [20]p. JPRS: 16375.
Order from OTS or SLA $1.60 63-13289

Trans. of Casopis za Elektroprivredu i Elektroindustriju (Yugoslavia) 1962, no. 5, p. 277-234 [sic].

DESCRIPTORS: *Scientific organizations, Electrical engineering, Electric power production, Electrical equipment.

A brief review of the past organization of the Institute, its relationship to the organizers of the Institute, as well as a review of the work of the Institute in 1961 are given in this article. A brief review of the more important work accomplished at the Institute during 1961 has also been given. (Author)

Nemirovskii, A. S.
ON THE COMBINATION RECEPTION OF SIGNALS SEPARATED BY MEANS OF ARRIVAL ANGLE IN LONG-DISTANCE TROPOSPHERIC UHF COMMUNICATION. 4 Aug 61 [10]p. 8 refs. USASIA Trans. Log no. 1197.
Order from OTS or SLA $1.10 62-32656

Trans. of #Elektrosvyaz' (USSR) 1960 [v. 14] no. 8, p. 19-25.

DESCRIPTORS: *Radio communication systems, Ultra high frequency, Troposphere, Scattering, *Radio signals, *Wave transmission, Radio reception, Angle of arrival, Antenna radiation patterns.

A new method of spaced reception is considered for long-distance tropospheric uhf communication, consisting of separation by beam arrival angle in the horizontal and vertical planes. Graphs are given showing the advantage of angular separation depending on the half-power width of the radiation pattern of the antennas and of the reliability of unitary reception. (Author)

Perov, V. P.
DESIGNING RADAR TRACKING SYSTEMS WITH RANDOM DISTURBANCES TAKEN INTO ACCOUNT. 25 Sep 62 [203]p. 24 refs. FTD-TT-62-623; AD-287 731.
Order from OTS or SLA $14.00 63-13191

Unedited rough draft trans. of mono. Raschet Radiolokatsionnykh Sledyashchikh Sistem s Uchetom Sluchainykh Vozdeistvii, Leningrad, 1961, 167p.

DESCRIPTORS: Tracking, *Radar tracking, Design, Radar interference, *Interference, Radar signals, Noise (Radar), Statistical analysis, Errors, Target angle, Filters (Electromagnetic wave), Antenna radiation patterns.

Contents:
Foreword
Introduction
Correlation function of signal and noise video voltages
Errors of single (unit) measurements of angular coordinates and range
Errors in automatic target-coordinate determination taking smoothing of coordinates by tracking systems into account
Statistical calculations for radar tracking systems
Statistical calculation of passive and combination systems for automatic determination of target coordinates
Supplements 1-2
Symbols most frequently encountered
Bibliography.

Pokras, A. M.
CROSSTALK DAMPING IN A PERISCOPIC ANTENNA SYSTEM. 22 June 61 [10]p. 4 refs. USASIA Trans. Log no. 1181.
Order from OTS or SLA $1.10 62-32661

Trans. of #Elektrosvyaz' (USSR) 1960 [v. 14] no. 2, p. 14-19.

DESCRIPTORS: Radio relay systems, *Antennas, *Coupled antennas, *Radio interference, Damping, Antenna radiation patterns.

The crosstalk damping between two periscopic antennas on the same support is calculated. The graphs obtained make it possible to determine the minimum possible coupling between the systems from the geometrical dimensions of the elements of the antennas and the wavelength. (Author)

Pospelov, G. S.
ON PRINCIPLES OF CONSTRUCTING CERTAIN TYPES OF AUTOMATIC TUNING (ADAPTIVE) AUTOMATIC CONTROL SYSTEMS. 23 May 62 [21]p. 8 refs. FTD-TT-62-749.
Order from OTS or SLA $2.60 63-13245

Unedited rough draft trans. of mono. O Printsypakh Postroeniya Nekotorykh Vidov Samonastranvayushchikhsya Sistem Avtomaticheskogo Upravleniya, n.p., n.d., p. 1-17.

DESCRIPTORS: Automatic, Control systems, *Adaptive control systems, Tuned circuits, Construction, Transients, Differential equations.

Rozanov, A. V. and Kukhtenko, V. I.
A METHOD FOR CONSTRUCTING AN AUTOMATIC CONTROL SYSTEM WHOSE TRANSIENT IS CLOSE TO OPTIMAL. 25 Sep 62 [11]p. 1 ref. FTD-TT-62-973; AD-287 700.
Order from OTS or SLA $1.60 63-13222

Unedited rough draft trans. of Samoletnoe Elektrooborudovanie (USSR) 1960 [v. 1, no. 1] p. 63-69. Another trans. is available from OTS or SLA $1.10 as 62-13016, JPRS-10948, 8 Nov 61 [10]p.

DESCRIPTORS: Automatic, *Control systems, Design, Transients, Mathematical analysis, Differential equations.

For abstract see Technical Translations 7: 1032, 1962.

Rozenblatt, M. A.
TWO-CYCLE MAGNETIC AMPLIFIERS. [1958] [80]p. 15 refs. MDF R-117.
Order from OTS or SLA $7.60 63-13449

Trans. of mono. Magnitnye Usiliteli (Magnetic Amplifiers) Moscow, 1956, chap. 8, p. 412-510 and table of contents.

DESCRIPTORS: *Magnetic amplifiers, *Circuits, Design, *Transformers, *Power amplifiers, Voltage amplifiers, *Feedback, Vector analysis, *Alternating current, *Resonance, *Signals, *Direct current, Stability.

Topics discussed include (1) amplifiers with a carrier frequency output without feedback, (2) two-cycle power amplifiers, (3) a comparison of differential, bridge and transformer circuits, (4) the computation of 2-cycle amplifiers with ac output at a given (maximum) power (5) the computation of a low-power, maximum gain, amplifier, (6) the vector diagram of a 2-cycle amplifier, (7) the use of positive feedback in 2-cycle amplifiers with ac output, (8) direct amplification of ac signals which vary with the frequency of the source, (9) the use of resonance phenomenon in 2-cycle amplifiers with ac output, (10) fundamental circuits of 2-cycle amplifiers with direct (rectified) current output (11) the computation of 2-cycle amplifiers with dc output, and (12) 2-cycle magnetic amplifiers with irreversible feedback.

Schröter, Fritz.
THE COMMUTATION CAPABILITY OF THE CARBON BRUSH. [1962] [23]p. 12 refs.
Order from SLA $2.60 62-18173

Trans. of ETZ [Elektrotechnische Zeitschrift]. Ausgabe B. [der Elektrotechniker] (Germany) 1962, v. 14, no. 3, p. 49-55.

DESCRIPTORS: *Carbon brushes, *Commutators, Electric machinery, Power equipment, Materials.

The author suggests a definition of commutating ability of carbon brushes and gives a measurement procedure for it. Ultimately, the commutation difficulties of electrical machines are due to the self induction of the rotor windings. In switching a rotor segment the brush is not loaded with the energy stored in this inductance, but with a voltage impulse. For this reason the measuring procedure chosen here avoids the possibility of every inductance and loads the seitching edges with a definite voltage. The commutating possibilities of the brushes come from the interaction of several characteristics and therefore cannot be given a single numerical value. The investigation of a number of brush grades shows that in the first place the material of the brush determines the commutating ability of the brush, and not its physical data. (Author)

Shabalin, N. S.
ON THE OPERATIONAL RELIABILITY OF TELE-MECHANICS DEVICES (O Nadezhnosti Raboty Ustroistv Telemekhaniki). 1 Nov 61 [8]p. 1 ref. FTD-TT-61-142
Order from OTS or SLA $1.10 62-13565

Unedited rough draft trans. of #Elektrichestvo (USSR) 1960, no. 6, p. 91-93.

DESCRIPTORS: *Remote control systems, Power equipment, Control systems, Telemetering systems, Telephone communication systems, Operation, Reliability, *Reliability (Electronics).

Sirazitdinov, B. G. and Zubkov, D. I..
REVERSIBLE OBSERVATION SYSTEM FOR REMOTE TRANSMISSION OF FORCES AND DISPLACEMENTS. 21 June 62 [29]p. 4 refs. FTD-TT-62-531.
Order from OTS or SLA $2.60 62-32296

Unedited rough draft trans. of mono. Pribory Avtomatiki i Vychislitel'noi Tekhniki, n.p., 1961, p. 34-46.

DESCRIPTORS: *Remote control systems, Synchros, Direct current, *Electric motors, Statics, Dynamics, Stresses, Inertia.

This article discusses the results of the development of a model of one of the possible versions of a reversible observing system, intended for "electric arms" (electromechanical manipulators) to act as their degrees of freedom.

Stepanenko, I. P.
INTERNATIONAL CONFERENCE ON SEMICONDUCTING INSTRUMENTS. [1960] 8p. MDF Recon-3.
Order from OTS $0.50 62-11526

Trans. of Izvestiya V[ysshikh] U[chebnykh] Z[avedenii]. Radiotekhnika (USSR) 1960, v. 3, no. 1, p. 130-133.

DESCRIPTORS: Conferences, *Semiconductors, *Electronic equipment.

Taft, V. A. and Skobelev, V. A.
DIGITAL COMPUTER PROGRAMS FOR CALCULATING TRANSIENT PROCESSES IN NETWORKS WITH PERIODICALLY VARYING PARAMETERS. 21 Dec 61 [20]p. 2 refs. JPRS: 11607.
Order from OTS or SLA $1.60 62-15242

Trans. of Akademiya Nauk SSSR. Otdelenie Tekhnicheskikh Nauk. Izvestiya: Elektroenergetika, 1960, no. 2, p. 105-114 [sic].

DESCRIPTORS: *Electrical networks, *Transients, *Programming (Computers), Complex numbers, Circuits, Digital computers.

Results indicated that on the basis of frequency methods it is possible to write simple standard programs for calculating frequency responses and transient processes in complex electrical networks with periodically varying parameters. These programs can be directly used for calculations of different transient processes in electrical networks with periodic parameters varying according to harmonic law as well as for the calculation of the frequency responses of these networks.

Tsemel', G. I.
AUTOMATIC DISCRIMINATION OF A LIMITED SET OF WORDS. [1960] 9p. 14 refs. MDF T-151.
Order from OTS $0.50 62-11222

Trans. of A[kademiya] N[auk] SSSR. O[tdelenie] T[ekhnicheskikh] N[auk]. Izvestiya: Energ[etika] i Avto[matika] 1960, no. 5, p. 179-182.

DESCRIPTORS: *Speech, *Sound, Transmission, *Pattern recognition, Auditory perception, Automatic, Electronic relays, Relays, Speech transmission.

The investigation showed the possibility of realizing apparatus to discriminate a small number of words with high reliability (when only words of the set are pronounced). The question of the expediency of using such an apparatus can be solved only by practical utilization. A test of the operation showed the importance of constructing systems to recognize a limited set of words, i.e., systems which react only to a given word and are not sensitive to other words and sounds. (Author)

Tsemmel', G. I.
ON THE DETERMINATION OF INVARIANT CRITERIA OF OCCLUSIVE (PLOSIVE) SOUNDS BY MEANS OF CLIPPED SPEECH SIGNALS. [1959] 3p. MDF T-137
Order from OTS $0.50 62-11204

Trans. of A[kademiya] N[auk] SSSR. O[tdelenie] T[ekhnicheskikh] N[auk] Izv[estiya]: Energ[etika] i Avto[matika] 1959, no. 4, p. 214-215.

DESCRIPTORS: *Voice communication systems, Determination, Standards, *Speech, Analysis, *Speech transmission.

Phonemes were analyzed according to their time characteristics by means of speech signals subjected to clipping (after which they retained only two possible values of amplitude). Prior to clipping, the 300-cycle frequency was suppressed 6 db relative to the 3000-cycle frequency. The clearness of the clipped speech remained high and sufficient data remained for the discernment of the separate phonemes. An analysis of oscillograms of the clipped speech established that occlusives located before vowels are distinguished by the initial section and duration of the noise impulse (intrinsic signal). Measurements of the quantities n and τ in monosyllabic and disyllabic words containing P, T, and K with the vowels A, O, U, E, and Y indicated that soft variations in P, T, and K can be discriminated.

Tsetlin, M. L.
USE OF MATRIX CALCULUS TO SYNTHESIZE RELAY-SWITCHING CIRCUITS. [1961] 7p. 3 refs. MDF T-127.
Order from OTS or SLA $1.10 62-15893

Trans. of A[kademiya] N[auk] SSSR. Doklady, 1952, v. 86, no. 3, p. 525-528.

DESCRIPTORS: Matrix calculus, Synthesis, *Switching circuits, *Relays.

A matrix method is developed which is simple and with an obvious physical meaning and appears to be effective in solving a number of problems on synthesizing relay-switching circuits. (Author)

Vendik, O. G.
ON THE CURRENT DISTRIBUTION IN AN ANTENNA WITH NONMECHANICAL BEAM SCANNING. [1961] 17p. 8 refs. MDF V-157; AFCRL-512; AD-262 520.
Order from OTS $0.50 62-11576

Trans. of Izvestiya V[ysshikh] U[chebnykh] Z[avedenii]. Radiotekh[nika] (USSR) 1961, v. 4, no. 1, p. 64-76.

DESCRIPTORS: *Antennas, Electric currents,. Distribution.

The singularities are considered of the radiating current distribution in an antenna whose principal maximum of the directivity pattern must move nonmechanically in a prescribed sector. A relation in general form is established between the number of linearly-independent current components and the ratio of the scanning sector to the width of the main beam of the antenna. (Author)

Vladimirov, A. S.
APPARATUS FOR MEASURING IRREGULARITIES IN WAVEGUIDES. 22 June 61 [21]p. 4 refs. USASIA Trans. Log no. 1179.
Order from OTS or SLA $2.60 62-32659

Trans. of #Elektrosvyaz' (USSR) 1960 [v. 14] no. 2, p. 3-13.

DESCRIPTORS: *Waveguides, *Coaxial cables, Reflection, Measurement, *Measuring devices (Electrical and electronic), Generators, Pulse modulation, Attenuators, Pulse amplifiers, Video amplifiers, Electronic scanners, Circuits.

An apparatus is described for measuring reflections in waveguides. Special features of the equipment's principal circuits are discussed. Some results of the reflection measurements in waveguides and coaxial cables are included. (Author)

Vol'pert, A. R.
ON THE PHASE CENTER OF ANTENNAS. [1961] 13p. 1 ref. MDF V-159; AFCRL-580; AD-262 522.
Order from OTS $0.50 62-11394

Trans. of #Radiotekh[nika] (USSR) 1961, v. 16, no. 3, p. 3-12.

DESCRIPTORS: *Antennas, Phase measurement, Antenna radiation patterns, Mathematical analysis, *Dipole antennas.

An analytic form of the phase diagram is established for which antennas have a phase center. The properties of antennas without a phase center are analyzed. Simple examples are presented of discrete and linear antennas to which more complex structures can be reduced. (Author)

Yakovlev, V. S.
A MAGNETOGASDYNAMIC ASYNCHRONOUS GENERATOR. 15 Nov 62 [4]p. FTD-TT-62-196.
Order from OTS or SLA $1.10 63-13701

Unedited rough draft trans. of Soviet patent 141962 (693898/24) 19 Jan 61.

DESCRIPTORS: *Magnetohydrodynamics, *Generators, Design.

The object of the invention is a magnetogasdynamic asynchronous generator in the form of a flat tube made of insulating material with a multiphase winding, which creates a magnetic field traveling in the direction of motion of the gas. The special feature of the proposed generator, which ensures a decrease in the electrical resistance of the secondary-current loop in the gas and an improvement in the operational characteristics, consists in the fact that the end sections of the tube are made of a conducting heat-resistant material, such as graphite or metal. (Author)

Yakovlev, V. S.
A SYNCHRONOUS MAGNETOGASDYNAMIC A-C GENERATOR. 15 Nov 62 [4]p. FTD-TT-62-195.
Order from OTS or SLA $1.10 63-13695

Unedited rough draft trans. of Soviet patent 141961 (693895/24) 19 Jan 61.

DESCRIPTORS: *Magnetohydrodynamics, Alternating current, *Generators, Design.

The object of the invention is a synchronous magnetogasdynamic a-c generator in which an electromotive force is induced in the conductors of the stator winding by their interaction with a flow of ionized gas generated as a result of combustion of the fuel. The special feature of the proposed generator, which provides an increase in its maximum power by constructing the generator without a rotor, consists in the fact that the alternating-pole excitation system is made up of portions of increased electrical conductivity of the gas,

which are created by intermittent combustion of the fuel and are penetrated by an electrical current passed through the gas crosswise to the flow. (Author)

Zernov, D. V. and Elinson, M. I.
FIELD EMISSION AND COLD CATHODES. [1961]
30p. 54 refs. MDF Z-101.
Order from OTS or SLA $2.60 62-19122

Trans. of Radiotekhnika i Elektronika (USSR) 1956, v. 1, no. 1, p. 5-22.

DESCRIPTORS: *Field emission, Metals, Semiconductors, *Cold cathode tubes, Electric fields, *Space charges.

A survey and general analysis is given in this paper of the theoretical and experimental work in the region of field emission of metals and semiconductors and also the perspectives of the practical use of field emission are discussed. (Author)

Zubov, V. I.
MATHEMATICAL METHODS FOR THE STUDY OF AUTOMATIC CONTROL SYSTEMS, tr. ed. by David P. Gelfand. 1962, approx. 320p.
Order from MACM $12.50

Trans. of mono. [Matematicheskie Metody Issledovaniya Sistem Avtomaticheskogo Regulirovaniya, Leningrad, 1959, 324p.].
Another trans. is available from OTS $4.00 as AEC-tr-4494, Sep 61, 336p.

DESCRIPTORS: Automatic, *Control systems, Numerical methods and procedures, Motion, *Stability, *Linear systems, Synthesis, Oscillation, *Differential equations, Theory, Computers, Probability, Mathematics, Numerical analysis, *Transients, *Non-linear systems, Bibliography.

For abstract see Technical Translations 6: 847, 61.

Mechanical Engineering

USSR INDUSTRIAL DEVELOPMENT: SOVIET POWER MACHINERY NO. 6. 11 Dec 62 [35]p. JPRS: 16634.
Order from OTS or SLA $3.60 63-13519

Trans. of Energomashinostroenie (USSR) 1962 [v. 8] no. 9, p. 1-5, 35-37, 41; Promyshlennaya Energetika (USSR) 1962 [v. 17] no. 8, p. 53-54; and from Rabochaya Gazeta (USSR) 1962, 23 Sep, p. 1.

DESCRIPTORS: *Industrial production, *Power supplies, Diesel engines, Turbosuperchargers, Gas turbines, Axial flow compressors, *Electric power production, *Steam, *Boilers, Aerodynamics, Cooling, Rotor blades, *Hydroelectric power systems, *Power equipment, Machines, Steam pipes, Turbines, Machines.

Contents:
Turbo-compressors for pressure charging diesel engines, by M. M. Kovalevskii and others
Gas turbines for large-scale power production and the major scientific and technical problems of their development, by M. I. Korneev and others
The mighty force of a great river
Heat engineering
A scientific-technical conference on materials and technology of steam-pipes production for power installations with super-high parameters, by N. S. Kuznetsov
A large-scale hydroturbine model, by V. A. Nemm.

USSR INDUSTRIAL DEVELOPMENT: SOVIET REFRIGERATION MACHINERY NO. 11. 26 Dec 62 [30]p. JPRS: 16822.
Order from OTS or SLA $2.60 63-13646

Trans. of Kholodil'naya Tekhnika (USSR) 1962 [v. 39] no. 5, p. 1-3 (excerpts) 4-11, 17-19 (excerpts) 59 (excerpts) 69-70, 74-77 (excerpts) and from Kommunist Sovetskoi Latvii (USSR) 1962 [v. 18] no. 10, p. 16-19; Komsomol'skaya Pravda (USSR) 1962, 22 Sep, p. 4; Sel'skaya Zhizn' (USSR) 1962, 6 Nov, p. 6.

DESCRIPTORS: *Industrial production, Machines, *Refrigeration systems, Automation, Coolants, Air conditioning equipment, *Refrigerant compressors, Milk, Processing, Refrigerants, Laboratories, Compressor rotors, Heat exchangers, Low temperature research.

Contents:
Labor productivity is the main thing, by E. Gol'dberg
Frost producing mobile installation, by G. Karpova
Climate to order
Refrigeration industry of the Ukrainian SSR, by L. P. Ryzhenko
Development of the design of large refrigeration compressors, by E. S. Gurevich and others
A new installation for refrigerating milk, by O. V. Muratov and others
Halogen lamps for determining loss of refrigeration agent
Problem laboratory for refrigeration machinery
Freon rotor machines, by A. T. Karpov
Low temperature heat chambers, by N. I. Il'yina.

Khanin, G. A.
CERTAIN QUESTIONS OF THE AERODYNAMIC INVESTIGATION OF THE AUXILIARY ELEMENTS OF THE AXIAL COMPRESSOR STAGES OF TURBINES [Nekotorye Voprosy Aerodinamicheskogo Issledovaniya Vspomogatel'nykh Elementov Protochnoi Chasti Turbomashin]. [1961] 12p. MDF K-111.
Order from OTS or SLA $1.60 62-23164

Trans. of Teploenergetika (USSR) 1955, v. 2, no. 1, p. 12-17.

DESCRIPTORS: *Steam turbines, *Axial-flow compressors, Aerodynamics.

Certain cases are considered of the effect of the flow configuration at the inlet of a model of auxiliary elements of the axial compressor stage of turbines on the drag of these models. The necessity is shown of modeling for the drainage at actual inlet flow conditions. Certain constructive measures are described to decrease the drag of the axial compressor elements. (Author)

Kutman, B. L.
IMPROVED EFFICIENCY OF COAL-PULVERIZING MILL FANS BY INSTALLING AXIAL GUIDING DEVICES. [1962] [10]p. 2 refs. C. E. Trans. 2377; [DSIR] NLL M. 6017.
Order from OTS or SLA $1.10 62-25928

Trans. of Teploenergetika (USSR) 1958, v. 5, no. 8, p. 18-23.

DESCRIPTORS: Coal, Ball mills, Gas flow, *Axial-flow fans, Blowers, *Guide vanes, Hydraulic power systems, Ducted fans, *Air conditioning equipment.

The results are given of a laboratory- and industrial-scale investigation into the installation of axial guiding devices upstream of the blowers in coal-pulverizing mills. (Author)

Pöschmann, V.
INFRA-RED HEAT RADIATION AND ITS INDUSTRIAL EXPLOITATION. [1962] 10p. (figs. formulae tables refs. omitted).
Order from SLA $1.10 62-18241

Trans. of Gas, Wasser, Wärme (Austria) 1948, v. 2, no. 7, p. 143-149.

DESCRIPTORS: *Infrared radiation, Heaters, *Radiant heating panels, *Driers (Apparatus), Heat transfer, Dehydrators.

Yutkin, L. A. and Gol'tsova, L. I.
HYDRAULIC VOLUMETRIC PUMP. 30 Oct 62 [5]p. FTD-TT-62-1296.
Order from OTS or SLA $1.10 63-13699

Unedited rough draft trans. of [Soviet] patent 124805, appl. no. 110887/59c, 1, 7 Mar 59 (pub. in Byulleten' Izobretenii (USSR) 1949, no. 23).

DESCRIPTORS: Pumps, *Hydraulic pressure pumps, Design, Electric discharges, Electrical equipment.

The pump described is a further improvement of the pump in author's certificate Nr 110887, consisting in the first version, of a rigid connection of the rear of the valve with the piston stock, filled with a liquid of an additional cylinder, provided with electrodes, connected with the combustion diagram, and in the second version - completion of a tube, joining the pump chamber with the chamber of the additional cylinder and having such a length, so the time of passage of waves of compressed liquid through it is equal to the necessary time of delaying the closing of the pressure valve. Such an improvement of an hydraulic volumetric pump permits the insurance of the necessary synchronous closing of the pressure valve after the electro-hydraulic shock inside the pump chamber. (Author)

Zaslavskii, D. I.
A RIBBED TUBE FOR HEAT EXCHANGERS AND A METHOD OF ITS FABRICATION. 28 Feb 62 [5]p. FTD-TT-61-459.
Order from OTS or SLA $1.10 62-23677

Unedited rough draft trans. of Russian patent 128030, 6 June 57.

DESCRIPTORS: *Heat exchangers, Pipes, Helixes, Welding, Construction.

The tube of heat exchangers with ribbing made in the form of a wire spiral fastened to the outer surface of the tube is different in that, to increase heat exchange and to facilitate cleaning the ribbing from dust and corrosion, the spirals are arranged in parallel rows along the generatrix of the outside surface of the tube. To clamp the wire spiral descending from the winding head to the tube surface, a movable clamp is used which moves along the axis of the tube together with the welding electrode, soldering iron, or welding torch which fasten the loops of the spiral to the tube surface. (Author)

Ordnance, Missiles, and Satellite Vehicles

FIRST IN THE WORLD GROUP FLIGHT IN COSMIC SPACE (BASIC RESULTS). 29 Nov 62 [39]p. FTD-TT-62-1578
Order from OTS or SLA $3.60 63-13906

Unedited rough draft trans. from Pravda [Moscow] (USSR) 1962, no. 295(16151) 22 Oct, p. 1-3.
Another trans. is available from OTS or SLA $2.60 as 62-33719, JPRS-16064, 6 Nov 62 [30]p.;
An abstract trans from OTS or SLA $1.10 as 63-13250, AID-62-185, 2 Nov 62, 2p.

DESCRIPTORS: Manned, *Space flight, *Satellite vehicles, Control, Communication systems, Space communication systems, Cosmic rays, Safety, Astronauts, Training, Space medicine, Space environmental conditions.

Topic headings are (1) Problems and program of long lasting group flight, (2) structural characteristics of the ships, control and measurements during group flight, (4) radio and TV-communication with ships VOSTOK-3 and VOSTOK-4, (5) securing radiation safety, (6) medical-biological problems, (7) execution of group flight, and (8) basic results of the flight.

TRACKING OF MISSILES AND SPACE VEHICLES: REVIEW OF SOVIET LITERATURE MAY 62-JULY 62. Quarterly rept. no. 2(18) on AID Work Assignment no. 12. 15 Oct 62 [29]p. 17 refs. AID rept. 62-156; AD-287 286.
Order from OTS or SLA $2.60 63-13049

DESCRIPTORS: *Missiles, *Satellites (Artificial), Tracking, *Plasma physics, Gas ionization, *Ionospheric propagation, *Radio astronomy

Contents:
Ion clouds and ionosphere perturbations
Radio astronomy.

THE WORLD'S FIRST GROUP FLIGHT IN COSMIC SPACE. 2 Nov 62, 2p. AID rept. 62-185; [NASA N62-18028]; AD-289 028.
Order from OTS or SLA $1.10 63-13250

Abstract trans. from Pravda [Moscow] (USSR) 1962, 22 Oct, p. 1-3 (also pub. in Izvestiya (USSR) 23 Oct 62). A complete trans. is available from OTS or SLA $2.60 as 62-33719, JPRS-16064, 6 Nov 62 [30]p.

DESCRIPTORS: *Space flight, *Manned spacecraft, Launching, Weightlessness, Spaceship cabins, Shielding, Dose rate, Orbital flight paths, Landings.

Highlights of the Vostok-3 and Vostok-4 spaceflights are presented. The cosmodrome from which Vostok-3 and Vostok-4 were launched has several launching pads, but both spaceships were launched from the same launching pad twenty-four hours apart. Cosmonauts Nikolayev and Popovich both were free of the seat constraints and floating freely in the cabin for a total time of about three hours each. The spaceships were designed with external heat-resistant insulation and heat-resistant glass portholes protected by moveable shutters. The spacesuit was conditioned with air from the cabin; onboard compressed air and oxygen reserves were available to the spacesuit in case the hermetic sealing of the cabin was lost. The minimum distance between Vostok-3 and Vostok-4 was 6.5 km and the maximum distance was 3000 km; radio communications between the two was clear at all distances. The 24-hour radiation dose to which each of the cosmonauts was exposed was about 11 millirads; the total dose for Nikolayev was 43 millirads during 64 orbits, the total dose for Popovich was 32 millirads during 48 orbits. The two ships landed seven minutes apart in the designated area, and both cosmonauts landed close to their ships.

This item is the result of an interview with the leader of the Soviet cosmonaut group, Yevgeniy Anatol'yevich, conducted by Izvestiya correspondent V. Belikov. A new group of cosmonauts have been selected to begin training for the next Soviet manned space flight. It was also mentioned that perhaps one of the experienced cosmonauts (Gagarin, Titov, Nikolayev, or Popovich) might join this new group. While it is not possible to make a prediction of the approximate launching date on the basis of this interview, it can be noted that the next manned flight will not precede the complete processing of the data from the Popovich and Nikolayev flights.

Denisov, N. and Borzenko, S.
GAGARIN'S FLIGHT. 17 Sep 62 [54]p. FTD-TT-62-844; AD-287 715.
Order from OTS or SLA $5.60 63-13211

Unedited rough draft trans. of mono. Polet Gagarina; Materialy, Opulikovannyye v Pravde, Moscow, 1961, 47p.

DESCRIPTORS: Space flight, *Astronauts, Training, *Manned spacecraft, Satellites (Artificial), Design, Spacecraft cabins, *Space biology, Spaceship cabins

Contents:
The first flight of man into outer space
Communist Yurii Gagarin: the first cosmonaut.

Aksenov, E. P., Grebenikov, E. A. and Demin, V. G
AN OUTSTANDING SCIENTIFIC EXPERIMENT.
1 June 62 [22]p. FTD-TT-62-653; AD-286 141.
Order from OTS or SLA $2.60 62-32420

Unedited rough draft trans. of Priroda (USSR) 1961 [v. 50] no. 8, p. 7-15.

DESCRIPTORS: *Celestial mechanics, Manned, *Space flight, *Satellite vehicles, Launching, Orbital flight paths, Motion, Landing, Astronomy.

Celestial mechanics and the first manned space flight (that of Gagarin) are discussed.

Belikov, V.
WE ARE PREPARING FOR NEW LAUNCHINGS.
16 Oct 62, 2p. AID 62-169; [NASA N62-17349]; AD-287 290.
Order from OTS or SLA $1.10 63-13043

Abstract trans. from Izvestiya (USSR) 1962, 4 Oct, p. 4.

DESCRIPTORS: *Space flight, *Manned spacecraft, Launching, Astronauts, Training.

Dobrichovsky, Z.
SPACE TANDEM. 11 Oct 62, 3p. AID rept. 62-164; [NASA N62-17362]; AD-287 417.
Order from OTS or SLA $1.10 63-13046

Review of Veda a Technika Mladezi (Czechoslovakia) 1962, no. 17, p. 582-583

DESCRIPTORS: Satellites (Artificial), *Spaceships, *Manned spacecraft, Design, Launching, Landing.

Technical aspects of Soviet spaceships of the Vostok series are presented, including a diagram of the Vostok-1. The launch operation is automatic from the time (5 to 10 seconds before launch) at which the first stage of the rocket engine develops its full thrust and the gyros, command receivers, and altitude devices are switched on. An aerodynamic spike reduces drag at launch and burns off during reentry, thus forming a blunt cone which produces shock waves that prevent overheating of the ship. The entire skin of the ship is highly polished and coated with layers of silicone and other refractory ceramic materials. The contoured astronaut couch has an explosive device for ejecting the astronaut from the ship before landing. The protective g-suit is a seamless rubber coverall of bladders, which, although not usually necessary in the spacecraft cabin, would permit the astronaut to return the ship to earth in an emergency

or to bail out at high altitudes. Reentry operations include: (1) positioning the spaceship on the descent trajectory, (2) opening the brake flaps, (3) stabilizing the ship with its blunt end toward earth, (4) descent to the lower layers of the atmosphere, (5) horizontal positioning of the descending ship, and (6) intensive deceleration at an altitude of 40 to 30 km, by the opening of the aerodynamic brakes, steel fiber brake parachutes, and main parachutes.

Ivanov, A[natolii] I[vanovich] and Rybkin, G[eorgii] I[osifovich].
STRIKING EFFECT OF NUCLEAR EXPLOSION.
12 Sep 62 [359]p. 26 refs. FTD-TT-61-396.
Order from OTS or SLA $21.00 63-13382

Unedited rough draft trans. of mono. Porazhayushchee Deistvie Yadernogo Vzryva, Moscow, 1960, 383p.

DESCRIPTORS: *Nuclear explosions, *Nuclear weapons, *Shock waves, Explosion damage, Light transmission, *Radioactivity, Detection, Measurement, Gamma radiation, Neutrons, *Shielding, Penetration, *Radiological contamination, Defense systems, *Passive defense, Monitors, Decontamination, Armed forces operations.

Contents:
Brief description of working principle of nuclear weapons
Shockwaves from nuclear explosions
Luminous radiation from a nuclear explosion
General information on properties of nuclear radiation
Penetrating radiation from a nuclear explosion
Radioactive contamination during nuclear explosion
Anti-atomic defense for troops.

Krasnov, V.
AN ANTIMISSILE BEAM. 10 Aug 62 [7]p. FTD-TT-62-1130; AD-287 725.
Order from OTS or SLA $1.10 63-13179

Unedited rough draft trans. from Krasnaya Zvezda (USSR) 1962, 17 July, p. 3, cols. 5-7.

DESCRIPTORS: Defence systems, *Antimissile defense systems, *Lasers, Irasers, Lightning, Ion beams.

The possibilities of using lasers, irasers artificial ball lightning, and ion-beam projectors as antimissile weapons are discussed. The material is drawn largely from non-Soviet press reports.

Krasovskii, V.
A NEW SERIES OF INVESTIGATIONS. 7 Nov 62 [5]p. FTD-TT-62-1579.
Order from OTS or SLA $1.10 63-13884

Unedited rough draft trans. from Izvestiya (USSR) 1962, no. 66, 18 Mar, p. 1.

DESCRIPTORS: *Satellites (Artifical), *Geophysics, Van Allen radiation belt, Terrestrial magnetism.

A summary of geophysical satellite researches.

Krumpels.
LOGISTICS IN ATOMIC WARFARE (La Logistique dans la Guerre Atomique) tr. by W. E. C. 1 May 58, 17p. H-3026.
Order from OTS or SLA $1.60 59-14894

Trans. of Revue de Documentation Militaire (Belgium) 1958, no. 102, p. 78-94 (originally pub. in Allgemeine Schweizerische Militär-Zeitung, 1957, no. 9).

DESCRIPTORS: *Logistics, *Nuclear warfare, Warfare, Economics, Transportation, Fuels, Food, Ammunition, Armed forces equipment, Armed forces operations.

Lengauer, G. G.
ON THE POSSIBILITY OF NOCTURNAL OPTICAL OBSERVATIONS OF ARTIFICIAL SATELLITES.
17 Sep 62 [57]p. 24 refs. FTD-TT-61-351; AD-287 686.
Order from OTS or SLA $5.60 63-13225

Unedited rough draft trans. of Astronomicheskaya Observatoriya, Pulkovo. Izvestiya (USSR) 1960, v. 21, no. 6(165) p. 83-113.

DESCRIPTORS: *Satellites (Artificial), Tracking, *Optical tracking, Optical equipment, *Searchlights, Reflection.

It is proposed that cataphotes be installed on artificial satellites. Cataphotes are optical systems which have the property of returning the light incident upon them back to the source from which the light came. By illuminating the satellite with a powerful searchlight it is possible, under certain conditions, to see the starshaped speck of light formed by the cataphote. Calculations were made of the brightness of the background formed by the searchlight beam under various observational conditions, and the corresponding limiting stellar magnitudes for a luminous point which is still visible against this background have been determined. In order to observe the satellite, a sufficiently wide searchlight beam

must be employed, for the purpose of which the searchlight is adjusted somewhat out of focus. With a luminous intensity for the searchlight of 10^{10} candles and a beam width of 5^{o}, a satellite can be observed on the AT-1 telescope at distances up to 500 km. With the help of a focused beam it is possible to observe a satellite at distances up to 1500 km, but for this an apparatus must be had to train the searchlight on the satellite with sufficient accuracy. Photographic observations are also possible.

Marinin, Yurii.
HOW A SATELLITE IS CONTROLLED. 28 Aug 62 [5]p. FTD-TT-62-1206; AD-287 728.
Order from OTS or SLA $1.10 63-13178

Unedited rough draft trans. of Sovetskaya Latviya (USSR) 1962, 22 June, p. 4.

DESCRIPTORS: *Satellites (Artifical), *Manned spacecraft, Control systems.

Ryabchikov, E.
IN THE CITY OF "THE CELESTIAL BROTHERS". 9 Nov 62 [8]p. FTD-TT-62-1583.
Order from OTS or SLA $1.10 63-13886

Unedited rough draft trans. from Pravda [Moscow] (USSR) 1962, 7 Aug, p. 4.

DESCRIPTORS: *Astronauts, *Space flight, *Training, Training devices, Laboratories, *Space environmental conditions, Simulation.

Sanitation and Safety Engineering

Moiseitsev, P.I.
ORGANIZATION OF SANITARY CONTROL IN THE USE OF RADIOACTIVE SUBSTANCES AND OVERALL SOURCES OF IONIZING RADIATION IN THE ECONOMY OF THE UNION OF SOVIET SOCIALIST REPUBLICS. 21 Aug 61 [11]p. JPRS: 9896.
Order from OTS or SLA $1.60 61-27730

Trans. of Gigiena i Sanitariya (USSR) 1961, v. 26, no. 5, p. 51-55.

DESCRIPTORS: *Radioactive isotopes, *Labelled substances, *Nuclear industrial applications, Sanitary engineering, Safety, *Health physics instrumentation, Radiological contamination, Countermeasures, Radioactive waste disposal, *Radiation measurement systems.

Krylov, V. A. and Solovei, A. P.
SAFETY MEASURES RECOMMENDED FOR WORK ON RADIO-FREQUENCY GENERATOR INSTALLATIONS. 19 Nov 62 [20]p. FTD-TT-62-339.
Order from OTS or SLA $1.60 63-13687

Unedited rough draft trans. of mono. Bezopasnost' Truda pri Rabote na Ustanovkakh s Generatorami Energii Vysokikh i Sverkhvysokikh Chastot, Moscow, 1961, p. 3-17.

DESCRIPTORS: Electronic equipment, Radiofrequency generators, Radio waves, *X-rays, *Radiation injuries, *Safety.

Information concerning the effects on radio waves on man and the precautionary measures against radiation by radio waves and soft x-rays is summarized and basic recommendations are presented to ensure safe working conditions when dealing with radio-frequency generator installations.

FOOD, HANDLING, AND PACKAGING EQUIPMENT

THE TOXICITY OF PLASTICS (De Giftigheid van Plastics). [1962] [11]p. (foreign text included).
Order from SLA $1.60 62-18182

Trans. of Verpakking (Netherlands) 1958, v. 10, no. 9, p. 608-611.

DESCRIPTORS: *Plastics, *Toxicity, *Food, *Packaging, Standards.

MACHINERY, FABRICATION, AND ACCESSORY EQUIPMENT

DEVICE FOR THE MEASUREMENT OF THE FORCE REQUIRED TO DISPLACE A LEVER. [1962] 2p. (figs. omitted).
Order from OTS or SLA $1.10 62-18208

Trans. of German patent 89,060, 31 Oct 96, pat. from 11 Dec 95, by Max Jüdel and Co.

DESCRIPTORS: *Wrenches, Design Small tools.

USSR INDUSTRIAL DEVELOPMENT: SOVIET CONSTRUCTION MACHINERY NO. 25. 3 Jan 63 [59]p. JPRS: 16962.
Order from OTS or SLA $3.60 63-13845

Trans. of Stroitel'nye i Dorozhnye Mashiny (USSR) 1962 [v. 7] no. 11, p. 1-10 (excerpts) 22-23 (excerpts) 25-26 (excerpts) 31-32; Sel'skoe Stroitel'stvo (USSR) 1962, no. 10, p. 18; Narodnoe Khozyasitvo Kazakstana (USSR) 1962 [v. 20] no. 9, p. 11-15; Shakhtnoe Stroitel'stvo (USSR) 1962 [v. 6] no. 11, p. 4-6; Mashinostroitel' (USSR) 1962 [no. 11] p. 16; and from Izvestiya (USSR) 1962, 14 Oct, p. 1; Ekonomicheskaya Gazeta (USSR) 1962, no. 38[59] p. 45.

DESCRIPTORS: *Industrial production, Construction, *Road building equipment, *Earth moving equipment, Hoists, Bulldozers, Snow removal, *Drills, *Diesel
Contents:
The 45th anniversary of the Great October Revolution
An exhibition of self-propelled construction and road building machines in Moscow,by A. S. Selenevich
The self-propelled D-505 grader-elevator, by E. E. Kolenda
The D-307A snow plow, by N. V. Besfamil'nyi
The AMK-20 machine for the installation of ferroconcrete bridge components, by V. T. Mikhailov
New machines
Construction work machinery and tools, by K. Privalovskii
The focus of attention is labor saving, by A. Eleusizov
A two-stage air breathing thermodrill for drilling work without the use of oxygen, by I. P. Goldaev and others
U2D6 TK diesel motor produced in Sverdlovsk economic region
Welcome gifts from the Ural workers
Loading workers ask for retirement.

USSR INDUSTRIAL DEVELOPMENT: SOVIET METALWORKING EQUIPMENT NO. 41. 11 Dec 62 [30]p. JPRS: 16627.
Order from OTS or SLA $2.60 63-13479

Trans. of Kuznechno-Shtampovochnoe Proizvodstvo (USSR) 1962 [v. 4] no. 10, p. 39-42; Mashinostroitel' (USSR) 1962 [no. 10] p. 8-9; and from Ekonomicheskaya Gazeta (USSR) 1962, no. 40[61] p. 45; Rabochaya Gazeta (USSR) 1962, 25 Oct; Pravda, Leningrad (USSR) 1962, 26 Sep; Leninskoe Znamya (USSR) 1962, 27 Sep; Sovetskaya Belorussiya (USSR) 1962, 26 Sep.

DESCRIPTORS: *Industrial production, *Metals, *Mechanical working, *Material forming, Industrial plants, Machines, Forge presses, Electrical equipment, Manufacturing methods, Machine tools, Reinforced concrete, Foundations (Structures), Scheduling, Construction materials industry, Machining, Cutting tools, Specifications, Steel, Sheets, Automation, Remote control systems, Lathes.

Contents:
Modernization of crank drop-forging presses at the Voronezh heavy mechanical presses plant, by V. Degtyarev and P. N. Vysotskii
Cross rolling automatic machine
Ferroconcrete is described in machine tool building, by M. Bol'shakov
Machine tools that exist but cannot be used, by N. Chirskov
Use of reinforced concrete at Kolomna heavy machine tool building plant, by K. Yanarev
New developments at Gomel' machine tool building plant imeni Kirov, by E. Zhukovskii
Universal high-precision cutting machine model 675P
Gas cutting machine "Odessa" model MGM-1
Universal screw-cutting high-precision lathe model 1604.

USSR INDUSTRIAL DEVELOPMENT: SOVIET METALWORKING EQUIPMENT NO. 42. 20 Dec 62 [23]p. JPRS: 16787.
Order from OTS or SLA $2.60 63-13472

Trans. of Byulleten' Tekhniko-Ekonomicheskoi Informatsii (USSR) 1962, no. 10, p. 40-46 (excerpts) Mekhanizatsiya i Avtomatizatsiya Proizvodstva (USSR) 1962 [v. 16] no. 10, p. 57; and from Ekonomicheskaya Gazeta (USSR) 1962, no. 41[62] p. 46; Kazakhstanskaya Pravda (USSR) 1962, 22 Sep, p. 1; Leninskoe Znamya (USSR) 1962, 3 Oct, p. 1; 5 Oct; Pravda, Moscow (USSR) 1962, 3 Oct; 5 Oct.

DESCRIPTORS: *Industrial production, *Metals, *Machines, *Machine tools, Lathe tools, Broaches, Surfaces, Grinding wheels, Automation, Parts catalogs, Electric machinery, Electrical equipment, Forge presses, Cutting tools, Casting, Machining, Scheduling.

Contents:
The 7740 vertical breaching lathe for external broaching, by V. P. Tsegel'nik
Model 3B71MV surface-grinding machine, by B. S. Korshunov
Double-sided face-grinding automation, model VSh-182, by K. V. Fashkevich
Defects in machine tools and automation lines
Publications of Enikmash
The NR-20
Rotors: machinery of the future
Full load machines and machine tools
Progressive technology for machine building, by M. Popekhin
Things that worry machine tool plant workers, by V. Kochetkov and others.

Barnscheidt, Wolfgang and Schädler, Max.
INVESTIGATIONS FOR ASCERTAINING THE OPTIMAL DEWATERING METHODS FOR DRYING CYLINDERS WITH RESPECT TO HEAT-TRANSFER AND POWER-REQUIREMENT. [1962] 11p. (37 figs. omitted).
Order from SLA $1.60 62-14673

Trans. of das Papier (West Germany) 1960, v. 14, no. 10a, p. 600-609.

DESCRIPTORS: *Heat transfer, *Cylindrical bodies, Condensate pumps, *Dehydration, Power supplies, Helixes, Water, Steam condensers, Velocity, Turbulence, Vapor pressure, Machines, Construction.

For obtaining results utilizable directly in the practice there was set up a steam-heated cylinder of diameter 1.5 meters and width 5 meters. The condensation water in the cylinder forms at low velocities a sump and at higher velocities a ring. While at the sump state a good heat transfer is assured, the water-ring constitutes a considerable heat-resistance. There are discussed the efforts made to keep the water-ring thin and to produce a turbulence in the water-ring. Both of these measures decrease the heat-resistance. For dewatering with scoops there is explained the importance of the proper spiral form. (Author)

Eugene, F.
CONTRIBUTION TO THE STUDY OF THE WEAR OF CUTTING TOOLS. [1962] (figs. formulae, tables, refs. omitted).
Order from SLA $1.60 62-18106

Trans. of Revue de Métallurgie (France) 1952, v. 49, [no. 4] p. 267-282.

DESCRIPTORS: *Cutting tools, Standards, Resistance, *Friction, *Temperature, Tool steel.

Motovilov, O. A. and Dekha, S. N.
A MAGNETIC DRIVE. 9 Oct 62 [6]p. FTD-TT-62-1143; AD-287 706.
Order from OTS or SLA $1.10 63-13193

Unedited rough draft trans. of Soviet patent 143099 (720432/25) 6 Mar 61.

DESCRIPTORS: *Magnetic drives, Design, Vacuum apparatus, Magnets.

The shortcoming of known magnetic drives is that their magnets have large dimensions. In a magnetic drive built according to the invention the dimensions of the magnets are decreased without reducing the value of the torques transmitted by them. This is accomplished by placing the magnets in a hermetically sealed box located outside the boundaries of the vacuum apparatus, with the magnets separated by a thin nonmagnetic vacuum-tight membrane. Thus, the driven magnet is removed from the vacuum chamber proper. This ensures the possibility of establishing the necessary gap between the magnetic elements which, in turn, allows us to construct them out of small permanent magnets. (Author)

Tiraspolsky, W.
THE DRILLING TURBINE: THE DRILLING WITH THE TURBINE AND TURBO-DRILLING. 25 Apr 56, 8p.
Order from SLA $1.10 62-16653

Trans. of Techniques du Pétrole (France) 1956, Feb, p. 4303-4304.

DESCRIPTORS: *Turbines, Compressors, *Drilling machines, Velocity.

Trieber, Oscar.
METHOD FOR MANUFACTURING KNIVES WITH POINTED-BEVELED-BACK BLADES. 9 May 35 [1]p. (figs. omitted).
Order from OTS or SLA $1.10 62-18460

Trans. of German patent 333,985, 23 Nov 19.

DESCRIPTORS: *Knives, Small tools, Manufacturing methods, Tool steel.

Tsigankov, S. P.
INVESTIGATION OF A DUST SYSTEM WITH A DRUM-TYPE BALL MILL, OPERATING ON LEAN COAL, WITH SUPPLEMENTARY BLOWING OF THE RETURNS (Issledovanie Pylesistemy s Sharovoi Barabannoi Mel'nitsei, Rabotayushchei na Toshchem Ugle, s Dopolnitel'nym Proveivaniem Vozurata) [1962] [19]p. 3 refs. BM Trans. no. 1803.
Order from OTS or SLA $1.60 62-33221

Trans. of Elektricheskie Stantsii (USSR) 1960, v. 31, no. 3, p. 10-17.

DESCRIPTORS: Industrial equipment, *Ball mills, Design, Blowers, *Coal, Particles, Separation, Manufacturing methods.

Engines and Propulsion Systems

Abyants, V. Kh.
PLASMA ENGINES ION AND PHOTON ROCKET ENGINES. 11 Oct 62 [13]p. 4 refs. FTD-TT-61-464; AD-287 685.
Order from OTS or SLA $1.60 63-13226

Unedited rough draft trans. of [Vsesoyuznoe Obshchestvo po Rasprostraneniyu Politicheskikh i Nauchnykh Znanii]. Seriya 4 (USSR) 1960 [no. 6] p. 26-34.

DESCRIPTORS: *Plasma engines, Ions, *Ion engines, Photons, *Rocket motors, Plasma jets, Electric arcs, Thrust.

Dorfman, L. A., Osherov, Yu. S., and Efimov, I. M.
INVESTIGATION OF AIR-STREAM COOLING OF GAS TURBINE DISKS [AND] EXPERIMENTAL HIGH-TEMPERATURE GAS TURBINES OGT-850 OF THE CENTRAL SCIENTIFIC RESEARCH INSTITUTE FOR BOILERS AND TURBINES. 18 Oct 62 [18]p. 3 refs.
FTD-TT-62-1023. AD-290 829
Order from OTS or SLA $1.60 63-13389

Unedited rough draft trans. of Energomashinostroenie (USSR) 1961 [v. 7] no. 10, p. 23-26 and 48.

DESCRIPTORS: *Gas turbines, Gas turbine rotors, Air cooled, Gas flow, *Heat transfer, Temperature, Test methods.

Results of temperature measurements of the metal of gas turbine disks cooled by air streams are presented. Interpolation formulas for approximate determination of disk temperature are found. (Dorfman and Osherov) The experimental gas turbine OGT-850 is intended to investigate air cooling systems for the rotors and cases of gas turbines. The turbine is calculated for a starting gas temperature of 850°C and develops a power of 1000 kw. The OGT-850 is being used to investigate the temperature conditions of a rotor cooled by blowing air through special gaps in the herring-bone connections of the impellers, and of a three-ply case where the cooling air passes between the outside shell made of pearlitic steel and between two light heat-resistant shields welded from austenitic sheet steel. (Yefimov)

Gurov, Aleksei Fedorovich.
SIMULTANEOUS VIBRATIONS IN GAS-TURBINE ENGINES. 2 Nov 62, 2p. AID rept. 62-181; [NASA N63-10278]; AD-289 026.
Order from OTS or SLA $1.10 63-13252

Trans. of mono. Sovmestnye Kolebaniya v Gazoturbinnykh Dvigatelyakh, Moscow, 1962, p. 3, 5, 15, 17 (excerpts).

DESCRIPTORS: *Airplane engines, Turbines, *Gas turbines, Design, Vibration.

Excerpts are presented from Soviet sources to throw some light on the vibration problems that concern Soviet designers of aircraft gas-turbine engines. These indicate that one source of vibration is due to the tendency to reduce the weight of engine structures which results in lower rigidity. It is also noted that a precise analysis of the gas-turbine vibration process is not yet possible and that little work has been done on simultaneous vibrations.

Minyailenko, N. A.
DETERMINATION OF THE TEMPERATURE FIELD AND THERMAL STRESSES OF TURBINE DISCS. [1962] [91]p. 51 refs. FTD-TT-62-766.
Order from OTS or SLA $8.60 63-13689

Unedited rough draft trans. of mono. [Opredelenie Temperaturnogo Polya i Peplovykh Napryazhenii v Turbinnykh Diskakh] Kiev, 1960, p. 3-69.

DESCRIPTORS: *Gas turbine disks, *Turbine rotors, Temperature, Thermal stresses, *Heat transfer, Thermal conductivity, Temperature sensitive elements, Boundary layer, Nomograms.

A simplified method is given for calculating the temperature fields and the thermal stresses in radially cooled turbine discs. Consideration is given to the simplified method and the sequence in the calculation of temperature fields and thermal stresses in turbine discs during the starting and the operational regimes of the turbine and the use of the theory of a regular thermal regime to investigate heat-transfer processes when stopping and starting a hot turbine. The method and the results are presented of an experimental determination of temperature fields during the starting regimes in rotating full-scale discs of gas turbines. Also discussed is the influence of various factors on the temperature field of the cooling turbine disc and the basis, in this regard, of certain assumptions used when developing the simplified method.

Manufacturing Equipment and Processes

USSR INDUSTRIAL DEVELOPMENT: SOVIET REGIONAL ECONOMY NO. 25. 7 Dec 62 [23]p.
JPRS: 16562.
Order from OTS or SLA $2.60 63-13530

Trans. of Referativnyi Sbornik. Ekonomika Promyshlennosti (USSR) 1962, no. 9, p. 104-105; and partial trans. of Kommunist, Vilna (USSR) 1962 [v. 45] no. 8, p. 33-36.

DESCRIPTORS: *Industrial production, Machines, Industry, Management engineering, Economics, Labor, Automation.

Contents:
Specialization, concentration, co-operation, and the state of Soviet industry, by G. Koroleva
Lithuania's national economy on the increase, by B. Dubasov.

USSR INDUSTRIAL DEVELOPMENT: SOVIET REGIONAL ECONOMY NO. 26. 31 Dec 62 [30]p.
JPRS: 16914.
Order from OTS or SLA $2.60 63-13664

Trans. of Kommunist Moldavii (USSR) 1962 [v. 7] no. 9, p. 26-32; Mashinostroitel' (USSR) 1962, no. 10, p. 1-2; and from Stroitel'naya Gazeta (USSR) 1962, 24 Oct; Kommunist, Erevan (USSR) 1962, 22 Sep; Leninskoe Znamya (USSR) 1962, 28 Sep; Sovetskaya Moldaviya (USSR) 1962, 19 Sep; 27 Sep.

DESCRIPTORS: *Industrial production, Industry, Construction, Construction material industry, Machines, Machine tool industry, Standards, Management engineering, Labor unions, Production, Statistical data.

Contents:
Industrialization of carpentry
Potentials of machine building industry, by I. Suchinskii
Abnormal attitude to standard specifications, by K. Shulivnik
Growing demands of machine building, by S. Kirka
Urgent problems of organizing industrial production in the republic, by D. Ton
Work of the trade union organizations for the standard of new tasks
Some production figures for first 6 months of 1962.

USSR INDUSTRIAL DEVELOPMENT: SOVIET REGIONAL ECONOMY NO. 27. 3 Jan 63 [23]p. JPRS: 16940.
Order from OTS or SLA $2.60 63-13663

Trans. of Bukhgalterskii Uchet (USSR) 1962, no. 9, p. 16-20; and from Sovetskaya Kul'tura (USSR) 1962, 13 Nov, p. 1; Ekonomicheskaya Gazeta (USSR) 1962, no. 38[59] p. 2.

DESCRIPTORS: *Industrial production, *Printing, *Industrial equipment, Production, Costs, Economics.

Contents:
Modern equipment for printers
Cooperative deliveries complete and on time
Calculating expenditures for the production of new equipment, by N. Ivanov
Increasing equipment use coefficient, by T. Lapin.

USSR INDUSTRIAL DEVELOPMENT: SOVIET REGIONAL ECONOMY NO. 30. 9 Jan 63 [15]p. JPRS: 17056.
Order from OTS or SLA $1.60 63-13840

Trans. from Rabochaya Gazeta (USSR) 1962, 31 Oct; 2 Nov, p. 1; Stroitel'naya Gazeta (USSR) 1962, 24 Aug, p. 1; VDNKh SSSR. Informatsionyi Byulleten' [sic] 1962, no. 11.

DESCRIPTORS: Industry, *Industrial production, Labor, Personnel, *Awards, *Labor unions, Construction, Agricultural machines, Infrared lamps, Management engineering, Economics.

Contents:
Selection of winners of the Republican Socialist competition
In the council of ministers Ukrainian SSR and the Ukrainian Republican Council of Trade Unions
Completion of various construction projects threatened
New exhibits at the All-Union Exposition.

Kieszkalt, S.
RECENT RESULTS WITH FINE GRINDING. [1962] 6p. (figs. omitted) 12 refs.
Order from SLA $1.10 62-18407

Trans of V[erein] D[eutscher] I[ngenieure]. Zeitschrift (West Germany) 1955 [v. 97, no. 29] p. 1009-1011.

DESCRIPTORS: *Grinders, *Ball mills, Tests, Friction, Brittle materials.

From tests using a model ball mill, especially test measurements of deciding friction-and lift operating members, it was found that the grinding law formulated in 1867 by Rittinger for calculating the mechanical energy absorption, based on the weight of the grinding media, is not valid. For brittle material, it was shown that energy absorption varies with the square of the specific surface of the grinding medium. (Author)

Kroos, W[ilhelm].
WHICH OF THE TWO; WET OR DRY GALVANIZING? [Was Wählen Wir? Nass- oder Trochenverzinkung]? [1962] 3p.
Order from SLA $1.10 62-18397

Trans. of Metalloberfkäche (West Germany) 1955 [v. 9, no. 3] p. 38B-39B.

DESCRIPTORS: Metal coatings, *Zinc coatings, Preparation, Manufacturing methods.

Popov, O. V.
PIERCING OF HOLES IN SHEET PARTS BY EXPLOSIVES. 11 Oct 62, 3p. AID rept. 62-163; [NASA N62-17243]; AD-287 418.
Order from OTS or SLA $1.10 63-13044

Abstract trans. of Kuznechno-Shtampovochnoe Proizvodstvo (USSR) 1962 [v. 4] no. 7, p. 18-24.

DESCRIPTORS: *Material forming, Sheets, *Explosive forming, *Shaped charges, Underwater explosions, Shock waves, Grains (Metallurgy), Hardness.

A study of all known methods of explosive hole piercing has shown that contact piercing by a shaped explosive charge and piercing by a high explosive charge in a water tank are the only acceptable methods for piercing holes of various sizes and shapes in high-strength and heat-resistant materials. The contact piercing method is effective for piercing holes in flat sheet, end closures and shells. Since the holes obtained by this method are slightly tapered, a finishing operation is required. Piercing under water is most effective in the simultaneous piercing of a large number of holes which can be of complex shape; this method can be combined with a forming operation. In explosive hole piercing, it is best to use a charge which will produce a shock wave whose shape corresponds to the cross section of the part being pierced; that is, spherical charges should be used for end-closure parts, cylindrical for cylindrical shells, flat for flat surfaces, etc. Microhardness tests show that explosively pierced parts are strain-hardened by 5% to 10%, depending on the material and the initial pressure of the shock-wave front. In the zones adjoining the holes, this strengthening amounts to 15% to 30%. Microstructural analysis of the strain-hardened zones showed that grain refining occurred to a depth of 0.1 to 0.15 mm from the hole surface. Piercing with a shaped explosive charge results in more pronounced grain refining and a thicker strain-hardened layer.

Shaumyan, G. A.
SYSTEMS OF PROGRAMMED CONTROL. 21 June 62 [37]p. FTD-TT-62-507; AD-283 868.
Order from OTS or SLA $3.60 62-32689

Unedited rough draft trans. of mono. Avtomaty i Avtomaticheskie Linii (Automation and Automatic Systems) Moscow, 1961, chap. 4, p. 193-209.

DESCRIPTORS: Manufacturing methods, Industrial production, *Machine tools, *Lathes, *Automation, *Programming (Computers), Punched card methods, Magnetic tape, Photographic films, Digital systems, Design, Feedback, Industrial equipment.

The basic principles of programmed production control systems are outlined. Special reference is given to programmed lathing methods and equipment.

Verner, E. E., Umanskii, A. M., and Gurevich, B. D.
USE OF POWDERED METAL PRODUCTS IN TRACTOR MANUFACTURE. 8 Jan 63 [9]p. JPRS: 17041.
Order from OTS or SLA $1.10 63-13823

Trans. of Traktory i Sel'khozmashiny (USSR) 1962 [v. 32] no. 10, p. 42-44.

DESCRIPTORS: *Powder metallurgy, Sintering, Impregnation, Oils, Sulfur, Material forming, Tests, *Tractors, *Bushings, Manufacturing methods.

A discussion of the manufacturing technology and characteristics of iron-graphite bushings produced by powder metallurgy methods. Topics considered include compacting, sintering, impregnation with oil, sulfurization and mechanical processing of the shaped parts, and operation tests.

Transport, Traction and Hoist Facilities

SOVIET TRANSPORTATION TRANSLATIONS NO. 36. 9 Jan 63 [90]p. JPRS: 17067.
Order from OTS or SLA $8.10 63-13822

Trans. of Zheleznodorozhnyi Transport (USSR) 1962 [v. 44] no. 10, p. 3-7, 18-25; #Voprosy Ekonomiki (USSR) 1962, no. 9, p. 20-30; Grazhdanskaya Aviatsiya (USSR) 1962 [v. 19] no. 8, p. 25 and inside front cover.

DESCRIPTORS: *Transportation, Railroad cars, Locomotives, Electric motors, Diesel engines, Maintenance, Cargo vehicles, Railroads, Maintenance equipment, Electric brakes, Electricity, Transmission lines, Civil aviation, Air transportation, Aviation personnel.

Contents:
Utilize rolling stock more efficiently
New powerful electric locomotives, by S. N. Elkin and B. A. Tushkanov
Over-all development of the integrated transport system of the USSR, by T. Khachaturov
Equipment, amortization, and savings on the railroads, by A. Ivanov
New electric trains cruise in Latvia
The performance of track machine stations
Concerning regenerative braking, by K. Tarantsev
The Vodinskaya: otvaga sector is electrified
Improve the repair and maintenance of electric and diesel locomotives
Electrification of the Bologoe: Kalinin sector encounters difficulties, by B. Abaev and others
Soviet locomotives of the future, by A. Mikheev
Halt delays of locomotives in Ryazan', by V. Ershov and others
New developments in rolling stock building
Problems of transit hauls at North Caucasian airports, by O. Ovchinnikov
For profitable operation of the Donetsk airport, by I. Finkel'shtein
New aviation school graduates, by I. Butin.

USSR INDUSTRIAL DEVELOPMENT: SOVIET AUTOMOTIVE INDUSTRY NO. 25. 7 Jan 63 [18]p. JPRS: 16999.
Order from OTS or SLA $1.60 63-13850

Trans. of Avtomobil'nyi Transport (USSR) 1962 [v. 40] no. 7, p. 13-14, 37, 40, 55; no. 9, p. 59; Narodnoe Khozyaistvo Uzbekistana (USSR) 1962 [v. 4] no. 4, p. 48-49; Za Rulem (USSR) 1962 [v. 20] no. 10, p. 12-13; and from Sovetskaya Litva (USSR) 1962, 6 Sep, p. 4; Leninskoe Znamya (USSR) 1962, 7 Sep, p. 3.

DESCRIPTORS: *Industrial production, *Automotive industry, Vehicles, Cargo vehicles, Passenger vehicles, Internal combustion engines, Transportation.

Contents:
New motor vehicle engines
Cars for invalids, by D. Sasorov
Complaints received about the "motokoloyaska", by I. Polikakhin and B. Efimov
Experimental model of LiAZ-5E676 coupled bus
Planning or weak supervision, by L. Trofimov
L'vov intercity buses, by K. Atoyan.

MATERIALS

Hayakawa, Sohachiro.
A THEORETICAL ATTEMPT ON THE PACKING OF POWDERS. 1961 [11]p. 4 refs. NRL Trans. no. 812.
Order from OTS or SLA $1.60 62-25703

Trans. of Tokyo Daigaku Rikogaku Kenkyusho Hokoku (Japan) 1950, v. 4, no. 3/4, p. 31-36.

DESCRIPTORS: *Powders, *Soils, *Chemicals, Particles, Theory, Models (Simulations), Statistical analysis, *Silicon compounds, Oxides, *Gypsum, *Cements.

The condition for stable packing of powder was obtained by minimizing the free energy of a system of powder particles. A statistical mechanical treatment, normally applicable only to microscopic phenomena, was applied. This meant that the problem could not be treated as a thermodynamic system, and also there was no clear physical significance to the pressure. However, since theoretical treatment of the packing problem had not been feasible by ordinary methods in the past, the present approach is of some interest. (Author)

Niclas, Giulio Giuseppe.
HERMETICALLY SEALED DEVICE FOR DISPENSING LIQUIDS, WITH ROTATING DISPENDING MEMBER OF ELASTIC OR PLASTIC MATERIAL, tr. by J. B. 27 Sep 62, 8p. (figs. omitted).
Order from OTS or SLA $1.10 62-33245

Trans. of French patent 970,519, gr. 19, cl. 3, appl. 14 Aug 48, granted 21 June 50, pub. 5 Jan 51 (pat. appl. filed Italy 13 May 47, statement of applicant).

DESCRIPTORS: *Seals (Stoppers), Liquids, Containers.

Ponomarev, P. V.
ULTRASONIC DETECTION OF FATIGUE DAMAGE IN MATERIALS. Dec 62, 700 words.
Order from HB $2.80 HB-5786

Trans. of #Zavodskaya Labortoriya (USSR) 1962, v. 28, no. 11, p. 1345-1346.

DESCRIPTORS: *Fatigue (Mechanics), Materials, *Ultrasonic radiation, Detection, Steel, *Non-destructive testing.

Speranskii, L. I.
VARNISHED CELLOPHANE, tr. by I. Gawronska. 9 Nov 61 [8]p. 9 refs. Courtaulds Misc. Lit. 3393; NLL M. 3527.
Order from OTS or SLA $1.10 62-24647

Trans. of Khim[icheskie] Volok[na] (USSR) 1961, no. 2, p. 33-37.

DESCRIPTORS: *Packing materials, *Plastic films, Coatings, *Varnishes, Resins, Nitrocellulose, Manufacturing methods.

Stupel, H.
HYGROSCOPIDITY, HARDENING, AND CAKING OF SYNTHETIC DETERGENTS. [1962] 4p.
Order from ATS $5.50 ATS-50P64G

Trans. of Seifen-Öle-Fette-Wachse (West Germany) 1954, v. 80, no. 10, p. 245-247.

DESCRIPTORS: *Detergents, Hardening.

Ceramics and Refractories

Brichard, E. and Plumat, E.
QUICK MEASUREMENT OF THE VISCOSITY OF GLASS AT LOW TEMPERATURE (Mesure Rapide de la Viscosité du Verre a Basse Température). [1962] [34]p. (foreign text included).
Order from SLA $3.60 62-18105

Trans. of Verres et Refractaires (France) 1955 [v. 9] no. 2, p. 69-81.

DESCRIPTORS: *Glass, Viscosity, Measurement, Temperature, Annealing, Instrumentation, Smelting, Crucibles, Conductivity, Deformation, Plasticity, Elasticity, Quality control, *Glass textiles.

Geffcken, W. and Neuroth, N.
HEAT EFFECTS IN GLASS WITHIN THE TRANSFORMATION RANGE. 24 Feb 60, 9p. (11 figs. omitted) 5 refs.
Order from SLA $1.10 62-14251

Trans. of Glastechn[ische] Ber[ichte] (West Germany) 1959, v. 32K, p. V/48-V 53.

DESCRIPTORS: *Glass, *Transformations, Transition temperature, Heat transfer, Thermal conductivity, Thermodynamics.

Gonzalez Carrero, J.
THE EFFECT OF THE BORON CONTENT OF "NEUTRAL GLASS": THE DISSOLVING OF SILICIC ACID BY DIOL SOLUTIONS, REPT. 2 (Eine Auswirkung des Bor-Gehaltes von "Neutralglas": Die Auflösung von Kieselsäure durch Diollosungen, 2. Mitteilung). [1962] [20]p. (foreign text included) 20 refs.
Order from SLA $1.60 62-14877

Trans. of Pharmaceutica Acta Helvetiae (Switzerland) 1956, v. 31, no. 9, p. 409-417.

DESCRIPTORS: *Boron, *Glass, *Silicic acid, *Glycols, Silicates, Solubility.

Haase, G.
WETTING OF GLASS SURFACES. [1962] 2p.
Order from SLA $1.10 62-18355

Trans. of Glastechnische Berichte (West Germany) 1949, v. 22, no. 12, p. 262.

DESCRIPTORS: *Glass, *Surface active substances, Surface properties, *Surface temperatures, Surface tension, Mercury, *Molecular association.

Huhmann-Kotz, Ilse.
THE TRANSMISSION OF ENERGY IN GLASS BATCHES. [1962] [18]p. (10 figs. omitted) 15 refs.
Order from SLA $1.60 62-14249

Trans. of Glastechn[ische] Ber[ichte] (West Germany) 1959, v. 32, no. 5, p. 189-197.

DESCRIPTORS: *Glass, Thermal conductivity, Thermal radiation, Heat transfer, *Melting, Temperature, Flames, Tanks, Energy, Functions, Transmission, Thermodynamics, Analysis of variance, Production.

An introductory survey of the physical processes taking place in the batch is given, and the significance of restricting the investigation to thermal conduction and radiation is discussed. The physical basis of transfer by radiation is discussed in general terms and the most important general results of application to conditions in the glass batch are summarized from the literature. Finally, the most important formulae and methods for calculating some actual cases are given briefly but adequately and the results, together with the laws deduced from the parameter variations, are described for a given case. (Author)

Kessler, W. and Scheibe, G.
SPECTRUM ANALYSIS METHODS, THEIR ACCURACY, AND THEIR APPLICATION TO GLASS. 1 Apr 60, 16p. (8 figs. omitted) 27 refs.
Order from SLA $1.60 62-14250

Trans. of Glastechn[ische] Ber[ichte] (West Germany) 1959, v. 32K, p. I/33-I/40.

DESCRIPTORS: *Glass, Spectrographic analysis, Aluminum compounds, Iron compounds, Oxides, Sheets, Electrodes, Errors, X-rays, Fluorescence, Optics.

After an historical review of emission spectrography the general basis of this analytical method is discussed. The various sources of error are then described, and it is shown how these can be eliminated by applying suitable principles of measurement. It has been found that the main source of error in applying this method to the analysis of glass lies in the preparation of the electrodes. Methods of eliminating this error are discussed with reference to the determination of Al_2O_3 and Fe_2O_3 in sheet glass. The significance of X-ray fluorescence analysis for the analysis of glass is discussed in relation to the other methods. (Author)

Knapp, Oscar.
CRYSTALLIZATION PROPERTIES AND COMPOSITION OF SILICATE GLASSES (Kristallistionsverinögen und Zusammensetzung der Silikatgläser). [1962] [16]p. (foreign text included) 4 refs.
Order from SLA $1.60 62-14873

Trans. of Silikat Technik (East Germany) 1959, v. 10, no. 8, p. 405-408.

DESCRIPTORS: *Glass, *Silicates, Crystallization, Solids, Liquids, Temperature, *Fused materials, Statistical analysis, Heat treatment, *Magnesium compounds, Oxides, *Lead, Organic compounds, *Ceramic materials, Production.

Knapp, Oscar.
THE GENESIS OF CRYSTALS IN SILICATE GLASSES (Die Entstehung der Kristalle in Silikatgläsern). [1962] [10]p. (foreign text included) 12 refs.
Order from SLA $1.10 62-18119

Trans. of Silikat Technik (East Germany) 1957, v. 8, no. 6, p. 231-232.

DESCRIPTORS: *Silicates, *Glass, *Crystallization, Crystals. Lattices, Polymerization, Nucleation.

Lecuir, R.
CERAMICS: BEHAVIOR OF POWDERS UNDER PRESSURE. 25 Apr 49, 2p. (fig. omitted).
Order from SLA $1.10 62-18431

Trans. of [Academie des Sciences, Paris]. Comptes Rendus (France) 1948, v. 226, 12 Jan, p. 191-193 (pub. by Gauthier-Villars et Cie., Paris).

DESCRIPTORS: *Ceramic materials, Powders, Pressure.

Okhrimovich, B. P., Pribytkov, A. E. and others.
TESTING OF UNBURNT CHROME-MAGNESITE BRICK FOR OPEN-HEARTH FURNACE ROOFS. Apr 59 [11]p. BISI Trans. no. 1268; NLL M.4573.
Order from OTS or SLA $1.60 62-24216

Trans. of Stal' (USSR) 1958 [v. 18] no. 2, p. 126-130. Another trans. is available from BISI £3 5s as BISI 1268 [1959].

DESCRIPTORS: *Brick, *Magnesite, Roofs, Open hearth furnaces, Chromite.

The wear of unburnt chrome-magnesite bricks in the roofs of steel fornaces is no different in character from that of burnt brick and arises from gradual spalling according to the degree of formation of zones and disruptive stresses. In open hearth furnaces unburnt brick wears 1% to 9% more quickly than the burnt kind (in the roofs of electric furnaces it wears twice as quickly). For reasons of economy unburnt chrome-magnesite brick may well be used for lining the roofs of open hearth furnaces. It is advisable however to line those parts most liable to wear with burnt and the rest with unburnt brick. (Author)

Riedel, Leopold.
OBSERVATIONS ON STREAMS AND DROPS (Beobachtungen an Flüssen und Tropfen). [1962] 5p. 1 ref.
Order from SLA $1.10 62-18203

Trans. of Glastechn[ische] Ber[ichte] (West Germany) 1956, v. 29, no. 2, p. 49-51.

DESCRIPTORS: *Glass, Processing, Ceramic materials, Solutions, *Fused materials, *Melting, Temperature, Silicates, Impurities, *Quartz crystals, Quartz.

Scholze, Horst.
THE INCORPORATION OF WATER IN GLASSES. III. INFRARED MEASUREMENTS OF OTHER GLASSES. [1962] 6p. (2 figs. omitted) 7 refs.
Order from SLA $1.10 62-14247

Trans. of Glastechnische Berichte (West Germany) 1959, v. 32, no. 7, p. 278-281.

DESCRIPTORS: *Glass, *Infrared spectroscopy, Water, Silicates, Fluorine, *Silica-free glass, Borax, Production, *Ceramic materials.

Solomin, N. V.
VISCOSITY OF SILICA. [1962] 9p. (tables refs. omitted) 27 refs.
Order from OTS or SLA $1.10 62-18318

Trans. of [Zhurnal Fizicheskoi Khimii] (USSR) 1940, v. 14 [no. 2] p. 235-243.

DESCRIPTORS: *Glass, Quartz, *Silicon compounds, Viscosity, Test equipment, *Viscosimeters, Dioxides.

Trier, W.
VISCOSITY DISTRIBUTION AND FLOW OF GLASS IN PREFORMERS. [1962] 33p. 20 refs.
Order from SLA $3.60 62-14252

Trans. of Glastechn[ische] Ber[ichte] (West Germany) 1959, v. 32K, p. II/17-II/25.

DESCRIPTORS: *Glass, *Viscosity, Distribution, Molding, Bubbles, Deformation, Cooling, Configuration, Liquids, Solids, Melting, Drawing (Machine processing) Production, Compressed air, Blowers, *Ceramic materials.

An apparatus for measuring the viscosity distribution in the glass in a preformer is described. A fine steel needle forced through the glass leaves behind a fine bubble trace of well-defined shape in the glass. The viscosity distribution can be derived from the deformation of this trace after axial flow of the glass. The effect of time of contact and type of glass on the viscosity distribution are discussed. (Author)

Wickert, Helmut.
SPECIAL TYPES OF GLASS MELTING FURNACES. [1962] 10p. (9 figs. omitted) 14 refs.
Order from SLA $1.10 62-14246

Trans. of Glastechn[ische] Ber[ichte] (West Germany) 1959, v. 32, no. 6, p. 247-251.

DESCRIPTORS: *Glass, *Melting, Open hearth furnaces Electric furnaces, Rotary furnaces, Construction, Design, Economics, Tanks, Refractory materials.

THE PROPERTIES OF AVIATION FUELS CONTAINING ISOPROPYL ETHER. [1962] [3]p.
Available on loan from SLA 63-10423

Trans. of Revue Pétrolifère (France) 1938, no. 784, p. 573.

DESCRIPTORS: *Aviation fuels, Fuels, Antiknock, Gasoline, Moisture, *Propyl ethers, Ethers, Solubility, Thermodynamics.

Blinov, V. I.
REGULARITIES OBSERVED IN MIXTURES OF LIQUID FUEL DURING IGNITION. 11 Sep 62 [8]p. 4 refs. FTD-TT-62-1037; AD-287 680.
Order from OTS or SLA $1.10 63-13209

Unedited rough draft trans. of Inzhenerno-Fizicheskii Zhurnal (USSR) 1961, v. 4, no. 2, p. 95-98.

DESCRIPTORS: *Fuels, Liquids, Mixtures, *Ignition, Temperature, Vapor pressure, Ethanols, Benzenes, Toluenes, Methanols.

Graff, W.
AGING OF LUBRICATING OILS IN OPERATION. 19 Jan 50 [7]p. (figs. tables omitted).
Order from SLA $1.10 62-18371

Trans. of E[lektrotechnik] und M[aschinenbau](Austria) 1949, v. 66 [no. 4] p. 88-92.

DESCRIPTORS: *Aging, *Lubrication, *Oils, Internal combustion engines, Cutting tools, Steam turbines, Viscosity, Test methods.

Khitrin, L. N.
THE THEORY OF COMBUSTION OF GAS MIXTURE FLOW AND THE CRITICAL CHARACTERISTICS OF ITS IGNITION. 19 June 62 [30]p. 29 refs. MCL-1331.
Order from OTS or SLA $2.60 62-25861

Unedited rough draft trans. of mono. Teoriya i Praktika Szhiganiya Gaza, Leningrad, 1958, p. 94-115.

DESCRIPTORS: *Fuels, Gases, Gas flow, *Combustion, *Ignition, Flames, Flame propagation, Velocity, Stabilization, Combustion chambers, Theory.

General theoretical considerations with respect to the combustion of gases are examined in the light of a continuous combustion system of gaseous (and vaporized) fuel. The problem of flow ignition is analyzed in detail because it is of primary importance under conditions of extreme forcing in combustion devices.

Kut'kov, A. A.
ANTIFRICTION MATERIAL FOR JOURNAL BEARINGS. [1962] 2p.
Order from ATS $3.00 ATS-34P65R

Trans. of USSR patent no. 148,663, filed 3 May 61 under no. 729,428/25 (announced in Byulleten' Izobretenii (USSR) 1962, no. 13).

DESCRIPTORS: *Lubricants, Bearings, *Journal bearings.

Loroue, D. and Paul, G.
STUDY OF A RAPID METHOD FOR THE DETERMINATION OF SMALL AMOUNTS OF TETRAETHYL-LEAD IN FUELS. [1962] 13p.
Order from ATS $12.50 ATS-57P65F

Trans. of Rev[ue de] l'Inst[itut] Franç[ais du] Pétrole [et] Ann[ales des] Combust[ibles] Liquides, 1962, v. 17, no. 6, p. 830-841.

DESCRIPTORS: *Fuels, *Lead compounds, Ethyl radicals, Determination.

Safronova, T. P. and Zhuze, T. P.
THE EFFECT OF THE NATURE OF PETROLEUM ON THE SOLUBILITY OF GASES IN IT. [1962] 7p.
Order from ATS $10.00 ATS-07P65R

Trans. of Neft[yanoe] Khoz[yaistvo] (USSR) 1962, v. 40, no. 6, p. 43-47.

DESCRIPTORS: *Petroleum, Gases, Solubility.

Sanin, P. I., Shepeleva, E. S., and Kleimenov, B. V.
ORGANOPHOSPHORUS COMPOUNDS CONTAINING THE TRICHLOROMETHYL GROUP AS ADDITIVES TO LUBRICATING OILS. [1962] 7p.
Order from ATS $8.00 ATS-00P66R

Trans. of mono. Khim[iya] i Primenenie Fosfororgan-[icheskikh] Soedin[enii] (Akad. Nauk SSSR, Kazansk. Filial, tr. Konf. (no. 2) 1959) [Moscow] 1962, p. 389-394.
A complete trans. of mono. is available from OTS or SLA $38.50 as 62-33349, JPRS-15432, 25 Sep 62 [1160]p.

DESCRIPTORS: *Lubricants, Oils, *Additives, *Phosphorus compounds, Methyl radicals, Chlorides.

Leather and Textiles

Baberkin, A. S., Bromberg, T. V. and others.
THE POSSIBILITY OF USING POTASSIUM CHLORATE IRRADIATED WITH γ-RADIATION OF Co^{60}, AS A BLEACHING AGENT, tr. by I. Gawronska. 18 July 61 [4]p. 1 ref. Courtaulds Misc. Lit. 3339; NLL M. 3437.
Order from OTS or SLA $1.10 62-24847

Trans. of Izvest[iya] Vysshikh Ucheb[nykh] Zaved[enii] Tekhnol[ogiya] Tekstil['noi] Prom[yshlennosti] (USSR) 1961 [v. 5] no. 1, p. 103-105.

DESCRIPTORS: *Chlorates, *Potassium compounds, Gamma rays, *Cobalt, Chlorites, *Radio active isotopes, *Bleaching agents.

The use of irradiated potassium chlorate for the process of bleaching gives very satisfactory results. A whiteness of 80% has been attained and the DP of the bleached fabrics is higher than the DP of fabrics bleached with hydrogen peroxide. (Author)

Oda, Ryohei and Hayashi, Yoshiyuki.
SYNTHESES OF SOME HETEROCYCLIC COMPOUNDS WITH LONG ALKYL SIDE-CHAINS AND THEIR APPLICATIONS AS WATER-REPELLING AGENTS FOR TEXTILES. [1962] 15p. 7 refs.
Order from SLA $1.60 62-14966

Trans. of Kogyo Kagaku Zasshi (Japan) 1961, v. 64, no. 7, p. 1230-1233.

DESCRIPTORS: *Textiles, *Moistureproofing, *Heterocyclic compounds, Synthesis, Alkyl radicals, Molecular structure.

Odor, L. and Helein, F.
MODIFICATION OF THE PROPERTIES OF POLYPROPYLENE FIBRE BY GRAFTING, tr. by I. Gawronska. 13 Sep 61 [11]p. 8 refs. Courtaulds Misc. Lit. 3371; NLL M. 3475.
Order from OTS or SLA $1.60 62-23946

Trans. of Khim[icheskie] Volok[na] (USSR) 1961, no. 2, p. 18-22.

DESCRIPTORS: *Synthetic fibers, Polymers, *Propenes, Radiation effects, Acrylic acids, Mechanical properties, Dyes.

Zhurkov, S. N. and Abasov, S. A.
TIME-TEMPERATURE DEPENDENCE OF THE STRENGTH OF POLYMER FIBRES (Temperaturnaya i Vremennaya Zavisimost' Prochnosti Polimernykh Volokon). Nov 61 [10]p. 15 refs. TIL/T. 5259; [DSIR] NLL M. 3558.
Order from OTS or SLA $1.10 62-25362

Trans. of Vysokomol[ekulyarnye] Soedineniya (USSR) 1961, v. 3, no. 3, p. 441-449.
Another trans. is available from OTS or SLA $1.60 as 62-16701 [1962] 13p.

DESCRIPTORS: *Polymers, *Synthetic fibers, Cellulose, Propenes, Nitriles, Vinyl chlorides, Tensil properties, Stresses, Chemical bonds, Mathematical analysis, Time, Temperature.

For abstract see Technical Translations 8: 1023, 1962

Paints and Finishes

Eisenstecken, F. and Kickermann, H.
RECENT TEST METHODS FOR THE DETERMINATION OF THE PHYSICAL PROPERTIES OF "OVEN-DRIED" (BAKED) ENAMEL COATINGS. 3 July 46 [1]p. (fig. omitted).
Order from SLA $1.10 62-18561

Abstract trans. of V[erein] D[eutscher] I[ngenieure]. [Zeitschrift] (Germany) 1944, v. 88, no. 31/32, p. 431 (complete article pub. in Korrosion und Metallschutz (Germany) 1944, v. 20, no. 1, p. 16-20).

DESCRIPTORS: *Ceramic coatings, Physical properties Test methods.

Mondon, R.
ELECTROLYTIC POLISHING AND SUPERFINISHING. 30 June 48, 19p. (figs. tables, refs. omitted).
Order from SLA $1.60 62-18422

Trans. of la Technique Moderne (France) 1946, v. 38, no. 23/24, p. 281-286 and 1947 [v. 39, no. 1/2] p. 17-21.

DESCRIPTORS: *Electrolytic polishing, Finishes, Surfaces, *Surface properties, *Metals, Mechanical properties.

Photographic Materials

Alles, F. P.
POLYESTER FILMS AND PROCEDURE FOR THEIR MANUFACTURING. 21 Nov 56, 15p.
Order from OTS or SLA $1.60 62-16342

Trans. of Belgian patent 538,815 by E. I. Du Pont de Nemours and Co , 7 June 55 (patent appl. USA 8 June 54 and 17 Feb 55 by F. P. Alles).

DESCRIPTORS: *Plastic films, *Photographic films, *Polyester plastics, Manufacturing methods, Photographic emulsions, Silver compounds, Halides.

Budiloff, Nikolai.
METHOD FOR THE PRODUCTION OF USEFUL ARTICLES (Verfahren zur Erzeugung Kunstgewerblicher Gegenstände). [1962] [6]p. (foreign text included).
Order from OTS or SLA $1.10 62-18480

Trans. of German patent 643, 301, 5 Apr 37, cl. 75b, gr. 2, S 114031 IVc/75b, main patent initiated 1 July 32, pat. from 18 May 34, pub. 11 Mar 37, suppl. to patent 607, 012, by Siemens and Halske A. G.

DESCRIPTORS: Material, *Photographic film, Photographic plates, *Metal films, *Aluminium, Photographic emulsions.

Method for the production of useful objects with the aid of oxide films on aluminum is described. It allows supports for photo-sensitive materials embedded in the oxide film without a bonding medium. The silver image produced in the oxide-layer is treated for a sufficient length of time in a physical developer to form a coating of coherent metallic silver on the illuminated portions on which coating any metal desired may be deposited electrolytically. The non-illuminated portions and/or the electroplated portions may be colored in any well-known manner. The metal film may be increased in thickness to the production of a relief by prolonged electroplating, or for the purpose of producing independent objects, by still further prolonged treatment, may be increased very greatly in thickness and them removed from the background by chemical or mechanical means. (Author)

Moshkovskii, Yu. Sh.
THE EFFECT OF CHEMICAL SENSITIZATION ON THE SENSITIVITY OF PHOTOGRAPHIC EMULSIONS AT LOW LIGHTING INTENSITIES. [1962] 12p. (5 figs. 3 tables omitted) 11 refs.
Order from OTS or SLA $1.60 62-14464

Trans. of Uspekhi Nauch[noi] Fot[ografii] (USSR) 1960, v. 7, p. 77-86.

DESCRIPTORS: *Photographic emulsions, Sensitivity, Light, Intensity, Photographic chemicals, Photosensitivity.

With an increase of the degree of chemical ripening, there is a decrease in the amount of deviation from the law of photographic reciprocity at low intensities. The introduction of hydrazine sulfate into the photographic emulsion leads to a considerable decrease in the deviation at low intensities and to a shift of the minimum exposure for iso-opacity towards longer times. Sensitization of the photographic emulsion with gold thiocyanate does not cause an increase in the light sensitivity at prolonged exposures and thus increases the value of deviation at low intensities. Introduction of a bromine acceptor (sodium nitrite) into the photographic emulsion does not have any influence on the deviation from the law of photographic reciprocity at longer exposures. (Author)

Natanson, S. V. and Levkoev, I. I.
REACTION OF SENSITIZING DYES WITH MOLECULAR BROMINE. [1962] 5p.
Order from ATS $6.50 ATS-78P65R

Trans. of Zh[urnal] Nauchn[oi] i Prikl[adnoi] Fotogr[afii] i Kinematogr[afii] (USSR) 1962, v. 7, no. 4, p. 300-304.

DESCRIPTORS: *Photographic recording media, Color film, *Dyes, Sensitivity, Chemical reactions, *Bromine.

Andreevskaya, G. D.
PHYSICOMECHANICAL PROPERTIES OF ORIENTED GLASS-FIBER PLASTICS. 25 Oct 62, 4p. AID rept. 62-173; [NASA N62-17878]; AD-288 037.
Order from OTS or SLA $1.10 63-13036

Abstract trans. of Akademiya Nauk SSSR. Vestnik, 1962 [v. 32] no. 5, p. 65-69.

DESCRIPTORS: *Aircraft equipment, Plastics, *Glass textiles, Bonding, Mechanical properties, Equations.

Physicomechanical properties and polymerization conditions are studied so as to develop fiber reinforced plastics that are useful in aircraft and rocket technology Also, a design theory is formulated to predict the properties of the reinforced plastics. Monolithic reinforced systems in which the fiber and the binder have optimum affinity is seen to depend on: (1) binder application onto fresh defect-free fibers, (2) fiber to binder adhesion, and (3) simultaneous deformation of all fibers under load. An equation is presented for elastic deformation of thin films of a rigid network Butvarphenolic resin; the validity of this equation for other rigid network binders is being investigated.

Dokukina, A. F., Egorova, E. I. and others.
COPOLYMERIZATION OF FLUORINATED STYRENES WITH VINYL MONOMERS, Pt. 1. of Synthesis and Polymerization (Copolymerization) of Fluorinated Styrenes. [1962] 4p.
Order from ATS $7.00 ATS-33P65R

Trans. of Vysokomolekul[yarnye] Soedin[eniya] (USSR) 1962, v. 4, no. 6, p. 885-888.

DESCRIPTORS: *Styrenes, Fluorides, *Vinyl radicals, Polymerization, Synthesis.

Dubois, P. and Herou, R.
STUDIES ON THE DIFFERENT ELECTRICAL TESTS FOR THE PRINCIPAL PLASTIC INSULATING MATERIALS, [1962] 8p. (tables refs. omitted) 7 refs.
Order from SLA $1.10 62-18162

Trans. of Revue Générale de l'Electricité (France) 1952 [v. 61, no. 9] p. 383-387.

DESCRIPTORS: Tests, *Electric insulation, *Plastics, Laminates, Standards.

Gladyshev, G. P. and Rafikov, S. R.
PHOTOOXIDATIVE ACTIVATION OF A POLYESTER-ACRYLATE OLIGOMER BY THE VISIBLE REGION OF THE SPECTRUM. Pt. 7 of Studies in Polymer Synthesis. [1962] 4p.
Order from ATS $5.00 ATS-41P65I

Trans. of Vysokomolekul[yarnye] Soedin[eniya] (USSR) 1962, v. 4, no. 9, p. 1351-1353.

DESCRIPTORS: Polymers, Synthesis, *Polyester plastics, *Acrylic resins, Oxidation, *Photochemistry, Spectrum (Visible and Ultraviolet).

Gol'danskii, V. I., Barkanov, I. M. and others.
THE CROSS-LINKING OF PTFE (TEFLON) AND OTHER POLYMER MATERIALS BY THE LOCALIZED ACTION OF NEUTRON IRRADIATION (Sshivanie Teflona i Krugikh Polimernykh Materialov Lokalizovannya Deistviem Neitronnogo Izlucheniya). [1962] [10]p. 8 refs.
Order from OTS or SLA $1.10 AEC-tr-5144

Trans. of mono. Symposium on the Chemical Effects of Nuclear Transformations, Prague, 24-27 Oct 60. Proceedings, v. 2 [Vienna] 1961, p. 363-369.

DESCRIPTORS: *Plastics, *Radiochemistry, *Halocarbon plastics, Styrene plastics, Polyethylene plastics, *Radiation effects, Neutrons, *Lithium compounds, *Boron compounds, Thermal column.

The phenomenon of cross-linking of polymers by ionizing radiation is frequently accompanied by undesirable radiation damage. To reduce this effect it is necessary to localize the action of the radiation near the cross-linked surfaces. Such localization was achieved by the surface absorption of boron- or lithium-containing compounds resulting from $B^{10}(n,\alpha)\,Li^{7}$ or $Li^{6}(n,t)\,He^{4}$ reactions. Under common reactor conditions (the volume dose D_V is of the order of 10^{-9} Fr (where F/cm^2 is the total neutron flux) the localization coefficient $L = D_S/D_V$ (dose in 1 mg/cm^2 of alpha-range surface layer over volume dose) reaches the value $L = 2,500\,C_{B}10$, where $C_{B}10$ is the weight concentration of B^{10} in the boron-containing compound. At thermal-column conditions the localization coefficients may be higher by several orders. (Author)

Huang, C. -Y.
SEPARATION AND REACTIVITY OF COMPONENTS OF m-XYLENE-FORMALDEHYDE RESIN. [1962] 8p.
Order from ATS $12.25 ATS-91P64J

Trans. of Kogyo Kagaku Zasshi (Japan) 1959, v. 62, no. 2, p. 273-276.

DESCRIPTORS: *Xylenes, *Formaldehydes, Resins, *Plastics, Separation, Chemical reactions.

Imoto, M.
SYNTHESES OF NEW PLASTICS. [1962] 33p.
Order from ATS $34.75 ATS-92P64J

Trans. of Yuki Gosei Kagaku Kyokai Shi (Japan) 1959, v. 17, no. 10, p. 579-594.

DESCRIPTORS: *Plastics, Synthesis.

Mal'tsev, V. L., Lebedev, V. B., and others.
NITROGEN-CONTAINING POLYMERS WITH PARAMAGNETIC PROPERTIES. [1962] 4p.
Order from ATS $5.75 ATS-50P65R

Trans. of Vysokomolekul[yarnye] Soedin[eniya] (USSR) 1962, v. 4, no. 6, p. 848-850.

DESCRIPTORS: Polymers, *Nitrogen compounds, Magnetic materials, *Paramagnetic materials.

Mochizuki, Takani.
X-RAY STUDY ON THE MELTING POINT OF PVA. [1962] 13p. (fig. omitted) 9 refs.
Order from SLA $1.60 62-18942

Trans. of Nihon Kagaku Zasshi (Japan) 1959, v. 80, [no. 11] p. 1203-1206.

DESCRIPTORS: Abstracts, *X-ray defraction analysis, Plastics, *Polyvinyl alcohols, Vinyl plastics, Temperature, Melting.

Within the limits of the experiments made by the author, the diffraction intensity always decreases if the sample is heat-treated at a certain temperature (about 220°C or above) regardless of the degree of polymerization of PVA and of the temperature used during the preparation of the films. (Author)

Rieche, A. and Gross, H.
PROCESS FOR THE PREPARATION OF PHENOLIC PLASTICS. [1962] 4p.
Order from ATS $6.50 ATS-20P66G

Trans. of German patent 1,105,164, appl. no. D 28656 IVb/39c, by Deutsche Akademie der Wissenschaften zu Berlin, appl. filed 29 July 58, opened for public inspection and pub. 20 Apr 61.

DESCRIPTORS: *Phenolic resins, Preparation, *Plastics.

Solomon, O. F., Dimonie, M., and Tomescu, M.
CALCULATIONS FOR MAINTAINING CONSTANT COMPOSITION IN THE TERNARY COPOLYMERIZATION. Pt. 1 of Copolymerization of the Ternary System Vinyl Acetate-Acrylonitrile-Styrene. [1962] 4p.
Order from ATS $5.00 ATS-68P65RU

Trans. of Rev[ista de] Chim[ie] (Rumania) 1960, v. 11, no. 4, p. 204-206.

DESCRIPTORS: *Vinyl plastics, *Acrylonitriles, *Styrenes, Polymerization, Reaction kinetics.

Sprin, Yu. L., Gantmakher, A. R., and Medvedev, S. S.
ELECTRONIC ABSORPTION SPECTRA OF CARBANIONS IN THE POLYMERIZATION OF STYRENE IN THE PRESENCE OF ORGANOMETALLIC COMPOUNDS. [1962] 4p.
Order from ATS $6.00 ATS-35P65R

Trans. of Vysokomolekul[yarnye] Soedin[eniya] (USSR) 1960, v. 2, no. 2, p. 310-312.
Another trans. is available from OTS or SLA $1.10 as 62-10439 [1961] [3]p.

DESCRIPTORS: *Metalorganic compounds, *Styrenes, Polymerization, Carbon, *Absorption spectra.

Tarutina, L. I. and Dunaevskaya, Ts. S.
SPECTROSCOPIC INVESTIGATION OF STRUCTURAL CHANGES ACCOMPANYING THE THERMAL AGING OF POLY(TRIFLUROCHLOROETHYLENE). [1962] 6p.
Order from ATS $9.75 ATS-44P65R

Trans. of Vysokomolekul[yarnye] Soedin[eniya] (USSR) 1962, v. 4, no. 2, p. 276-281.

DESCRIPTORS: *Polyethylene plastics, Fluorides, Chlorides, Heat treatment, Aging, Molecular structure, Spectrographic analysis

Troshkin St. John, A. N. and Titterton, W. E.
A PROCESS FOR COATING (OR LINING) AN ELONGATED OBJECT WITH THE AID OF POLYTETRAFLUOROETHYLENE AND PRESTRESSED TUBES. [1962] [15]p.
Order from OTS or SLA $1.60 62-16333

Trans. of Belgian patent 564,359 by Resistoflex Corp., USA, appl. 29 Jan 58, granted 29 July 58 (priority: USA filed 30 Jan 57).

DESCRIPTORS: *Plastic tubing, Coatings, *Polyethylene plastics, Fluorides, Heat treatment, Stresses, Manufacturing methods.

A tube of polytetrafluoroethylene resin agglomerated under heat and subjected to a prestressing has stable dimensions at ambient temperature but is susceptible, because of its being prestressed, of having the length of its periphery modified in a uniform manner along its entire length when it is heated at a temperature which is below the gelification point of the resin and then recooled. The tube is thus able to follow the form of a tubular element and to be tightly applied against one of the peripheric surfaces. (Author)

Vanina, V. I., Gutman, A. M. and others.
METHOD OF PREPARATION OF PLASTOMERS (Sposob Izgotovleniya Plastmassy). [1962] (foreign text included).
Order from OTS or SLA $1.10 62-18210

Trans. of Russian patent 116,082 [22 Nov 58] cl. 39b, 22_{01}, appl. no. 594,703, 14 Mar 58.

DESCRIPTORS: *Materials, Preparation, *Thermosetting resins, *Lignin, Dyes.

A method of the preparation of plastomers on the base of lignin and synthetic, highmolecular resins is described. In order to improve the physico- mechanical properties of the polymers, the lignin prior to such use is dyed with dyes, e.g. basic ones. (Author)

Waltmann, E.
APPARATUS AND METHOD FOR COATING FABRIC BREADTHS WITH FOAM OR FOAM FORMING AGENTS. [1958] 3p. MDF W-100.
Order from OTS $0.50 62-11631

Trans. of German patent application P 13155 VII/8h, filed 6 Dec 54, granted 23 Feb 56.

DESCRIPTORS: *Plastics, *Coatings, Textiles, *Foams, Machines, Manufacturing methods, Urethanes, Polymers.

An apparatus is described for coating fabric breadths or plastics with foam or foam-forming agents such as polyurethanes. It operates in such a way that one piece of the textile or plastic is extended on a table, while another one is rolled upon a roller mounted on a movable carriage above the table. The carriage is connected to the movable screen, and an apparatus for mixing and applying foam is placed above the table or at its side. The apparatus can be heated by a built-in high-frequency heater. After the foam interlayer has solidified, the 2 fabrics or plastic pieces are separated by a knife at the middle of the foam layer.

Yoshida, I.
METHOD FOR THE PREPARATION OF CATIONIC, ALCOHOL-MODIFIED MELAMINE RESINS. [1962] 5p.
Order from ATS $10.00 ATS-49P65J

Trans. of Japanese patent 12,544, 31 Aug 62, appl. no. 30,997 filed 30 Sep 59, by Sumitomo Kagaku Kogyo Co., Ltd.

DESCRIPTORS: Plastics, *Amino plastics, Preparation, *Alcohols, Thermosetting plastics.

Rubber and Elastomers

Palsop, Jhon Raymond and Schroeder, Herman.
PREPARATION OF A TERPOLYMER. [1962] 15p.
Order from OTS or SLA $1.60 62-16325

Trans. of published Japanese patent 36-3495, 19 Apr [61] application no. 34-37477, 3 Dec [59] by E. I. DuPont de Nemours and Co., USA (appl. USA, 4 Dec 58).

DESCRIPTORS: *Elastomers, *Polymers, Preparation, Fluorides, *Dienes, Vinyl radicals, *Propenes, *Ethylenes, Physical properties.

A process for preparation of an elastic terpolymer from vinylidene fluoride, hexafluoropropylene, and tetrafluoroethylene by copolymerizing from 3% to 35% by weight of tetrafluoroethylene and from 97% to 65% by weight of vinylidene fluoride and hexafluoropropylene is described. The ratio of vinylidene fluoride to hexafluoropropylene should be within the range of from 2.33:1.0 to 0.677:1.0 by weight. The reaction is carried out in the form of an aqueous emulsion in the presence of a redox catalyst at from 50° to 130°C. under a high pressure. (Author)

Price, C. C.
POLYMERIZATION OF OLEFIN OXIDES. [1962] 21p.
Order from OTS or SLA $2.60 62-18656

Trans. of Belgian improvement patent 607,024 (improvement on Belgian patent 566,583) by General Tire and Rubber Co., USA, filed 8 Aug 61 (filed USA: 8 Aug 60).

DESCRIPTORS: *Synthetic rubber, *Butadienes, *Propenes, Butenes, Pentenes, Oxides, Polymerization, Manufacturing methods, Vulcanization.

It is a purpose of the invention to prepare a solid copolymer from olefin oxides which can be vulcanized or hardened by classical rubber vulcanizers and which is water-resistant and applicable for the production of articles analogous to rubber. Another purpose is to obtain a production process for copolymers from one or several saturated alkylene oxides with one or several unsaturated alkylene oxides, these copolymers being capable of being worked on rubber machines and being produced and vulcanized with the use of a classical rubber vulcanizer in order to result in rubber articles possessing good properties. (Author)

Wood and Paper

USSR INDUSTRIAL DEVELOPMENT: SOVIET PRECISION EQUIPMENT NO. 52. 3 Jan 63 [16]p. JPRS: 16950.
Order from OTS or SLA $1.60 63-13680

Trans. of Bumazhnaya Promyshlennost' (USSR) 1962 [v. 37] no. 10, p. 6-10.

DESCRIPTORS: *Industrial production, *Paper industry, *Wood pulp, Automation, *Machines, Control, Industrial equipment, Quality control, Computers, Precision equipment.

Contents:
Automation in the pulp and paper industry, by L. N. Preobrazhenskii and S. S. Granat
Automation of new and modernized paper and cardboardmaking machinery, by A. D. Lichter.

Tyden, Hilding.
SULPHITE COOKING BARK DAMAGED WOOD. [1962] [10]p.
Order from SLA $1.10 62-18222

Trans. of Svensk Pappers-tidning, 1956, v. 59, no. 8, p. 296-300.

DESCRIPTORS: *Wood, Wood pulp, Sulfites, *Wood pulp fibers, Processing.

MATHEMATICS

Chen, Wen-yuan.
ITERATIVE PROCESS OF SOLVING NONLINEAR EQUATION OF GENERAL FUNCTIONS. [1962] 13p. 9 refs.
Order from OTS or SLA $1.60 AEC-tr-5118

Trans. of Shu Hsüeh Chin Chan (Chinese People's Republic) 1957, v. 3, p. 434-444.

DESCRIPTORS: *Numerical methods and procedures, Nonlinear differential equations, *Functions, Operators (Mathematics), Integral equations, Functional analysis.

The approximation methods considered are (1) Newton's method, (2) the method of hyperbolic asymptotes, and (3) the Chebyshev method.

Demidovich, B. P.
THE DISSIPATIVITY OF A CERTAIN NONLINEAR SYSTEM OF DIFFERENTIAL EQUATIONS, I.
29 Aug 62 [13]p. 5 refs. FTD-TT-62-1149; AD-287 726.
Order from OTS or SLA $1.60 63-13195

Unedited rough draft trans. of Moscow U. Vestnik. Seriya 1: Matematika, Mekhanika (USSR) 1961 [v. 16] no. 6, p. 19-27.

DESCRIPTORS: *Nonlinear differential equations.

In the article sufficient conditions are given such that each solution $\vec{x} = \vec{x}(t)$ of a nonlinear system of ordinary differential equations when $t \geq T(\vec{x})$ belongs to a certain fixed bounded domain D, that is, Levinson's D-property holds. (Author)

Gel'fand, I. M. and Levitan, B. M.
DETERMINATION OF A DIFFERENTIAL EQUATION BY ITS SPECTRAL FUNCTION (Ob Opredelenii Differentsial'nogo Uravneniya po ego Spektral'noi Funktsii). [1961] 11p. (foreign text included) 7 refs.
Order from OTS or SLA $1.60 UCRL Trans-643

Trans. of Akademiya Nauk SSSR. Doklady, 1951, v. 77, no. 4, p. 557-560.

DESCRIPTORS: *Differential equations, Integration, Integral equations, Equations, *Functions.

Lazarev, V. G. and Piyl', E. I.
METHOD OF OBTAINING A COMPLEX ALGORITHM BY COMBINING SIMPLE ALGORITHMS. 7 Jan 63 [13]p. 8 refs. JPRS: 17001.
Order from OTS or SLA $1.60 63-13836

Trans. of Akademiya Nauk SSSR. Otdelenie Tekhnicheskikh Nauk. Izvestiya: Energetika i Avtomatika, 1962, no. 3, p. 189-195.

DESCRIPTORS: *Programming (Computers), Computer logic, Operators (Mathematics), Topology, Matrix algebra, Numerical methods and procedures.

Oktaba, Wiktor.
METHOD OF COMPLETE CONFOUNDING OF INTERACTIONS WITH SUB-BLOCKS IN FACTORIAL EXPERIMENTS WITH TWO, THREE FOUR, AND FIVE LEVELS OF EACH FACTOR. 7 Jan 63 [68]p. 21 refs. JPRS: 16992.
Order from OTS or SLA $6.60 63-13855

Trans. of Uniwersytet Marii Curie-Sklodowskiej. Annales. Sectio E: Agricultura (Poland) 1956, v. 11, no. 6, p. 124-186

DESCRIPTORS: *Combinatorial analysis, Statistical analysis, Numerical methods and procedures.

The paper presents the method of constructing and arranging factorial field experiments and other experiments with 2, 3, 4, or 5 levels of each factor according to the so-called rule of complete confounding. The definitions of the main effects and interactions, as well as the notion of generalized interaction, which is indispensable for understanding the method of confounding, are given in detail, making use of a consistent system of symbols, in four cases, the number of levels being 2, 3, 4, and 5 respectively. There is also described the general method of statistical interpretation of completely confounded experiments; as an illustration serves a detailed description of an experiment of the type 4 x 4 x 4 based on 4 sub-blocks. Stress is laid on the small number of calculations which have to be added when passing from the randomized blocks method to the method of complete confounding, as well as on the simplicity of the necessary modification of the analysis of variance.

Postnikov, M. M.
FOUNDATIONS OF GALOIS THEORY. 1962. 115p.
Order from MACM $7.00

Trans. of mono. [Osnovy Teorii Galua, Moscow, 1960, 124p.].
Another trans. is available from GB $8.00

DESCRIPTORS: *Groups (Mathematics), *Algebra.

Computing Devices

A MACHINE THAT READS. 28 Aug 62 [3]p.
FTD-TT-62-1205; AD-286 604
Order from OTS or SLA $1.10 62-33637

Unedited rough draft trans. form Pravda Ukrainy (USSR) 1962, 12 June, p. 3.

DESCRIPTORS: *Reading machines, Reliability, Digital computers, Artifical intelligence, Pattern recognition.

MN-7 MINATURE NONLINEAR ELECTRONIC SIMULATOR. 11 Oct 62 [8]p. FTD-TT-62-1236; AD-288 529.
Order from OTS or SLA $1.10 63-13190

Unedited rough draft trans. of mono. Mashinostroeniya, Moscow, 1960, p. 1-5.

DESCRIPTORS: *Analog computers, *Nonlinear systems, *Miniature electronic equipment, Design.

The MN-7 nonlinear, electronic simulator is an analog mathematical machine, designated for investigating the dynamics of systems and objects of automatic control, the motion of which is recorded by ordinary differential equations, having a small amount of nonlinear dependencies. (Author)

UNIVERSAL AUTOMATIC DIGITAL COMPUTER, "URAL-2". 28 Nov 62 [11]p. 4 refs. FTD-TT-62-1237.
Order from OTS or SLA $1.60 63-13684

Unedited rough draft trans. of unidentified mono. issued by Akademiya Nauk SSSR. Vychislitel'nyi Tsentr. 1960, p. 290-297.

DESCRIPTORS: *Digital computers, Computers, Design, Operation.

Adel'son-Vel'skii, M. and Landis, E. M.
AN ALGORITHM FOR THE ORGANIZATION OF INFORMATION. 14 Jan 63 [9]p. 1 ref. JPRS: 17137.
Order from OTS or SLA $1.10 63-15102

Trans. of Akademiya Nauk SSSR. Doklady, 1962 [v. 146] no. 2, p. 263-266.

DESCRIPTORS: *Data processing systems, Digital computers, *Programming (Computers), Memory devices, Computer storage devices, Information retrieval.

The organization of information placed in the points of an automatic computer is discussed.

Glushkov, V. M.
COMPUTERS AND AUTOMATION OF PRODUCTION CONTROL. 14 Nov 62 [10]p. FTD-TT-62-1405.
Order from OTS or SLA $10.00 63-13702

Unedited rough draft trans. of Akademiya Nauk SSSR. Vestnik (USSR) 1962 [v. 32] no. 4, p. 86-90.

DESCRIPTORS: Computers, *Digital computers, *Industrial production, Control systems, *Automation, Steel industry.

Portsmann, Helfried.
LONG DISTANCE TRANSMISSION OF INFORMATION: PREREQUISITE FOR EFFICIENT DATA PROCESSING. 11 Jan 63 [8]p. (fig. omitted). JPRS: 17102.
Order from OTS or SLA $1.10 63-15108

Trans. of Signal und Schiene (Germany) 1962, v. 6, no no. 11, p. 407-409.

DESCRIPTORS: *Data transmission systems, *Data processing systems, Effectiveness.

Contents:
Traffic data transmission, a requirement of our times
Component units of data processing equipment
Long distance transmission of information--a prerequisite for economic and all-inclusive data processing
Transmission channel requirements

MECHANICS

DRY AND BOUNDARY FRICTION: FRICTIONAL MATERIALS [SELECTED ARTICLES]. (Sukhoe i Granichnoe Trenie: Friktsionnye Materialy). June 62 [229]p. 86 refs. FTD-TT-61-449; AD-283 860.
Order from OTS or SLA $15.00 62-32533

Unedited rough draft trans. of mono. Vsesoyuznaya Konferentsiya po Treniyu i Iznosu v Mashinakh (no. 3) 1958. Trudy, v. 2, Moscow, 1960, p. 3-7, 15-60, 79-87, 101-114, 119-124, 132-152, 161-183, 230-233, 283-288.

DESCRIPTORS: *Friction, *Materials, Surfaces, Surface properties, Machines, Temperature, Metals, Graphite, Deterioration, Cylindrical bodies, Roll, Solids, Shear stresses, Stresses, Fittings, Nuts (Mechanics), Locking fastener devices, Lubrication, *Lubricants, Molecular structure, Mechanical properties, Vibration, Hydrodynamics, Thermocouples, Ceramic materials, Bearings, Antifriction bearings.
Contents:
Contemporary state of knowledge concerning dry friction and ways to its development, by I. V. Kragel'skii
Sliding friction in the movement of a material point over an anisotropic surface, by A. U. Galeev and Yu. I. Pershits
A study of the relationship between temperature in friction and the physical properties of the surface layers of rubbing machine parts, by V. V. Gal'chenko and D. Ya. Speranskii
Certain qualitative relationships in the wear of metals under the conditions of dry and boundary friction, and ways of reducing it, by D. N. Garkunov
The work of friction and wear of rolling bodies, by N. I. Glagolev
Determination of the actual contact area between mated surfaces, by P. E. Dyachenko and others
Investigation of friction as shear resistance in thin surface layers on solid bodies, by G. Epifanov and N. I. Minaev
Modern conceptions of the mechanism of friction between the metal-graphite pair, by L. A. Plutalov
Scoring tests on pairs of materials for spindles and nuts of fittings, by I. Sgon
The basic mechanism of surface breakdown under the influence of repeated contact loading, by L. B. Erlikh
The physical properties of boundary lubricant layers from the viewpoint of the structural mechanics of the molecules forming them, by A. S. Akhmatov

The theory of frictional self-oscillation with periodic stopping, by B. V. Deryagin and others
The hydrodynamic theory of semifluid friction, by V. A. Kudinov
The mechanism of the lubricating effect of boundary films, by G. I. Epifanov and I. S. Avetisyan
A method for measurement of temperature gradients in thin surface layers of rubbing bodies, by S. A. Sukhov
Certain problems of friction in the metal oxide-ceramic pair, by S. I. Mishkind.

Bagdoev, A. G.
SPATIAL NON-STATIONARY MOTIONS OF SOLID MEDIUM WITH SHOCK WAVES. Nov 62, 284p. 65 refs.
Order from OTS $3.50 AEC-tr-5400

Trans. of mono. Prostranstvennye Nestatsionarnye Dvizheniya Sploshnoi Sredy s Udarnymi Volnami, Erevan, 1961 [276p.].

DESCRIPTORS: *Continuous media, *Continuum mechanics, *Shock waves, Impact shock, Mechanical waves, Pressure, Penetration, Solids, Bodies of revolution, Fluid dynamics, Compressible flow, Mechanics.

Contents:
Equations and boundary conditions of the investigated problems
Case of homogeneous liquid half-space for the linearized problem
Penetration of pressure in an inhomogeneous medium
Penetration of pressure into an elastic half-space
Ray method of calculating the intensities of wave fronts
Two-component medium
Solution of the problem in the approximate and rigorous formulation
Penetration of slender pointed body in a compressible homogeneous liquid
Penetration of cone of finite aperture in an incompressible liquid
Penetration of slender bodies in an inhomogeneous medium
Appendix to part I
Appendix to part II
Bibliography

Chernyi, G. G.
TURBULENT FLOW OF COMPRESSED GAS IN CHANNELS, tr. by Sergey Shewchuck. Feb 62 [12]p. 3 refs.
Order from OTS or SLA $1.60 UCRL Trans-785(L)

Trans. of Akademiya Nauk SSSR. Otdelenie Tekhnicheskikh Nauk. [Izvestiya] 1956, no. 6, p. 55-62.

DESCRIPTORS: *Gas flow, Turbulence, Adiabatic gas flow, Fluid mechanics, Equations of state, Integrals, Equations of motion, Gases, Pressure.

Karakashev, V. A.
CONTRIBUTION TO THE PROBLEM OF THE GYROSCOPE-STABILIZED PLATFORM WITH THE PERIOD OF NATURAL OSCILLATIONS T = 84.4 MIN. 15 Oct 62 [16]p. 12 refs. FTD-TT-62-1157; AD-288 527.
Order from OTS or SLA $1.60 63-13188

Unedited rough draft trans. of Izvestiya Vysshikh Uchebnykh Zavedenii. Priborostroenie (USSR) 1959, no. 2, p. 67-75.

DESCRIPTORS: *Inertial navigation systems, *Gyro stabilizers, Stabilization systems, Gyroscopes, Dynamics, Oscillation, Accelerometers.

Kavinov, I. F.
THE ENERGY METHOD OF INVESTIGATING THE STABILITY AND SELFOSCILLATIONS OF CONTROLLED SYSTEMS. 10 Oct 62 [25]p. 6 refs. FTD-TT-61-465; AD-287 683.
Order from OTS or SLA $2.60 63-13218

Unedited rough draft trans. of mono. Nekotorye Voprosy Analiza i Sistem Avtomaticheskogo Regulirovaniya: Sbornik Statei, Moscow, n.d., p. 52-69.

DESCRIPTORS: *Control systems, Stability, Oscillation, Energy, Linear systems, *Nonlinear systems, Periodic variations, Series.

It is demonstrated that the conditions of asymptotic stability of a single-degree object of control is reduced to the existence, with respect to the coordinate and speed of the object, of a positive-definite energy function and the negativity of the controlling organ in steady-state oscillations for a certain frequency range. The negativity conditions of the work of the controlling organ depend only on the parameters of the control system and consequently it is convenient to use them to determine the values of the parameters themselves. The self-oscillation parameters are determined from the condition that the dissipated energy of the object vanishes. The change in the sign of the total dissipated energy determines the nature of the self-oscillations, i.e., the stable or unstable self-oscillations under consideration. (Author)

Kutateladze, S. S. and Leontev, A. I.
THE TURBULENT BOUNDARY LAYER OF A GAS ON A PERMEABLE WALL. 23 Oct 62 [20]p. 18 refs. FTD-TT-62-1315.
Order from OTS or SLA $1.60 63-13896

Unedited rough draft trans. of Zhurnal Prikladnoi Mekhaniki i Tekhnicheskoi Fiziki (USSR) 1962, no. 1, p. 51-60.

DESCRIPTORS: *Gas flow, Boundary layer, *Turbulent boundary layer, Fluid dynamics, Surfaces, Permeability, Heat transfer, Cooling, Friction.

Lyubarskii, G. Ya. and Polovin, R. V.
THEORY OF SIMPLE SHOCK WAVES, tr. by Robert McCollum. [1961] [6]p. 5 refs.
Order from OTS or SLA $1.10 AEC-tr-4742

Trans. of mono. K Teorii Prostykh Voln, Khar'kov, 1960 [p. 35-39].

DESCRIPTORS: *Shock waves, Theory, *Magnetohydrodynamics.

We demonstrate that in magnetohydrodynamics a region of constant flow can be contiguous with a strong discontinuity or with a simple wave. (Author)

Myachin, V. E.
ELEMENTS OF THE THEORY AND METHOD OF DETERMINING THE DYNAMIC UNBALANCE OF ROTORS. 22 Oct 62 [13]p. (fig. omitted). FTD-TT-62-1332. AD-290 832
Order from OTS or SLA $1.60 63-13388

Unedited rough draft trans. of Izvestiya Vysshikh Uchebnykh Zavedenii. Mashinostroenie (USSR) 1962, no. 2, p. 5-13.

DESCRIPTORS: *Rotor blades, Dynamics, Rotation, Oscillation, Determination, Theory.

A theory and method for facilitating and speeding up the process of finding the point of rotor unbalance is discussed. The usual complex tracking systems are eliminated by replacing the rotating movement of the rotor with angular oscillatory movement, with oscillation amplitude of the order of several degrees.

Rozovskii, M. I.
EQUATIONS OF PLANE DEFORMATION IN LINEAR HARDENING HAVING TIME DIFFERENTIAL OPERATORS. 21 Aug 62 [16]p. 12 refs. FTD-TT-62-1039.
Order from OTS or SLA $1.60 62-33540

Unedited rough draft trans. of Akademiya Nauk SSSR. O[tdelenie] T[ekhnicheskikh Nauk]. Izvestiya: Mekhanika i Mashinostroenie, 1960, no. 5, p. 80-87.

DESCRIPTORS: *Elasticity, *Plasticity, *Deformation, *Hardening, Stresses, Relaxation time, Creep, *Integral equations, *Operators (Mathematics).

Integral-operator equations of creep and relaxation corresponding to a generalized model of plane elasto-plastic deformation with linear hardening of a compressible material are set up and analyzed. Using these equations, the peculiarities of relaxation in the elasticity and plasticity zones with hardening are studied. A study is made of the nature of the change with respect to time of the radius of a plasticity zone (with linear hardening) located near a circular aperture cut in an infinite plane about the circumference of which a pressure is exerted. The results are expressed in $\mathfrak{Z}\mathfrak{d}$ - operators, and the functions which realize them. (Author)

Senik, P. M.
DETERMINING ENERGY DISPERSION FUNCTIONS BY AN OSCILLATORY SYSTEM WITH MANY DEGREES. 13 June 62 [7]p. 2 refs. FTD-TT-62-382.
Order from OTS or SLA $1.10 62-32529

Unedited rough draft trans. of Prykladnaya Mekhanika (USSR) 1961, v. 7, no. 3, p. 253-257.

DESCRIPTORS: *Oscillators, Energy, Scattering, Damping, Oscillation, Functions, Numerical methods and procedures.

A method is given for finding functions, characterizing dissipation of energy of an oscillatory system with many degrees of freedom. To solve the problem an asymptotic method of small parameter and graphs of damping oscillations is used, written down in planes; a time-coordinate is generalized.

Tersenov, S. A.
ON THE EIGENVALUES AND EIGENFUNCTIONS OF THE OSCILLATIONS OF CYLINDRICAL SHELLS. [1961] 9p. 6 refs. MDF T-104.
Order from OTS or SLA $1.10 62-15897

Trans. of A[kademiya] N[auk] Gruz[inskoi] SSR [Tiflis]. Soobshcheniya, 1954, v. 15, no. 9, p. 575-581.

DESCRIPTORS: *Cylindrical bodies, Oscillation, Functions, Integral equations, Matrix algebra, Differential equations.

Proved in this paper is the existence of eigenvalues and eigenfunctions of the homogeneous system of differential equations of the steady oscillations of a cylindrical shell. (Author)

Voronov, A. Ya.
PLASMA ELLIPSOID IN ITS OWN FORCE FIELD. 30 Oct 62 [13]p. 3 refs. FTD-61-67. FTD-TT-61-67.
Order from OTS or SLA $1.60 63-13891

Unedited rough draft trans. of Moscow U. Vestnik. Seriya 3: Fizika, Astronomiya (USSR) 1960 [v. 15] no.5, p. 74-80.

DESCRIPTORS: *Plasma physics, *Ellipsoids, Bodies of revolution, Hydrostatic pressure, Electrostatics, Stability, Partial differential equations.

The conditions of equilibrium and stability of a charged spatially restricted plasma are examined in this article.

Aerodynamics and Pneumatics

Anisimov, S. I. and Romanov, G. S.
NONEQUILIBRIUM FLOW OF AIR IN NOZZLES. 16 Oct 62 [11]p. 11 refs. FTD-TT-62-1278.
Order from OTS or SLA $1.60 63-13690

Unedited rough draft trans. of Zhurnal Prikladnoi Mekhaniki i Tekhnicheskoi Fiziki (USSR) 1962, no. 1, p. 76-81.

DESCRIPTORS: *Fluid flow, *Nozzles, Gas flow, Air, Oscillations, *Oxygen, *Nitrogen, Dissociation, Reaction kinetics, Boundry layer.

Certain problems are evaluated concerning the kinetics of establishing equilibrium between progressive and inert degrees of freedom of molecules at high temperatures in the air. The obtained equations, describing monodimensional flow of air during non-equilibrium oscillations and oxygen and nitrogen dissociations, are given. Simple boundary cases are investigated. (Author)

Belotserkovskii, O. M.
BODIES WITH A DETACHED SHOCK (COMPUTATIONAL FORMULAS AND FLOW FIELD TABLES). 1962 [28]p. 4 refs.
Order from MDF $5.50

Trans. of mono. Raschet Obtekaniya Osesimmetrichnykh Tel s Otoshedshei Udarnoi Volnoi (Raschetnye Formuly i Tablitsy Polei Techenii) Moscow, 1961 [55]p.

DESCRIPTORS: *Ellipsoids, *Bodies of revolution, Nose cones, Spheres, *Supersonics, Shock waves, Gas flow, Fluid dynamics, Thermodynamics, Mach number, Pressure, Numerical analysis, Differential equations, Functions, Tables, Aerodynamics.

Chaplina, A. N.
EXPERIMENTAL INVESTIGATION OF HEAT EXCHANGE OF A PLATE WITH LONGITUDINAL AIR FLOW DIRECTED AROUND IT. 10 Oct 62 [9]p. 5 refs. FTD-TT-62-1413; AD-287 670.
Order from OTS or SLA $1.10 63-13207

Unedited rough draft trans. of Inzhenerno-Fizicheskii Zhurnal (USSR) 1962, v. 5, no. 7, p. 34-38.

DESCRIPTORS: *Aerodynamic configurations, *Heat transfer, *Gas flow, Turbulence, Experimental data.

Chernyi, G. G.
HYPERSONIC FLOW AROUND A BODY BY AN IDEAL GAS. [1961] 13p. 9 refs. MDF C 111.
Order from OTS or SLA $1.60 62-23227

Trans. of A[kademiya] N[auk] SSSR. Otd[elenie] Tekh[nicheskikh] Nauk. Izvestiya, 1957, no. 6, p. 77-85.

DESCRIPTORS: *Hypersonic flow, *Gas flow, *Geometric forms, Mach number, Aerodynamic characteristics.

The theory of hypersonic gas flow around a body is one of the newest regions of gas dynamics. The value of this theory is not only in the explanation of the peculiarities of hypersonic gas flow but is in the establishment of the asymptotic behavior of the aerodynamic characteristics of streamlined bodies as $M \to \infty$ (M is Mach number), it facilitates finding the Mach number dependence of these characteristics for moderate supersonic speeds. (Author)

Chernyi, G. G.
HYPERSONIC GAS FLOW AROUND A BODY [Obtekanie Tel Gazom pri Bol'shoi Sverkhzvukovoi Skorosti]. [1961] 6p. 5 refs. MDF C 106.
Order from OTS or SLA $1.10 62-23048

Trans. of A[kademiya] N[auk] SSSR. Doklady, 1956, v. 107, no. 2, p. 221-224.

DESCRIPTORS: *Hypersonic flow, *Fluid flow, Aerodynamic characteristics, *Blunt bodies.

A method is explained of computing the hypersonic flow around axisymmetric bodies and around plane contours, by a perfect gas with constant specific heat. (Author)

Chernyi, G. G.
ONE-DIMENSIONAL UNSTEADY MOTION OF A PERFECT GAS WITH A STRONG SHOCK WAVE [Odnomernye Neustanovivshiesya Dvizheniya Sovershennogo Gaza s Sil'nymi Udarnymi Volnami]. [1961] 6p. 4 refs. MDF C 107.
Order from OTS or SLA $1.10 62-23223

Trans. of A[kademiya] N[auk] SSSR. Doklady, 1956, v. 107, no. 5, p. 657-660.

DESCRIPTORS: *Shock waves, Numerical analysis, Gas flow, Motion, Propagation, Wave transmission.

A method is given of computing, approximately, the one-dimensional flow of a perfect gas with a strong shock, which is suitable for the cases when the motion is not self-similar. The method is based on the expansion of the solution in power series in $\varepsilon = \frac{\gamma - 1}{\gamma + 1}$ where γ is the ratio of the specific heats. (Author)

Kremnev, O. O. and Dukhnenko, M. T.
HEAT TRANSFER OF WAVE STRIPS IN A LONGITUDINAL AIR STREAM. 21 Sep 62 [6]p. 3 refs. FTD-TT-62-971; AD-287 698.
Order from OTS or SLA $1.10 63-13214

Unedited rough draft trans. of Akademiya Nauk URSR [Kiev]. Dopovidi, 1961, no. 11, p. 1495-1497.

DESCRIPTORS: *Heat transfer, Waves, Nickel, Fluid flow, Boundary layer, Heat exchangers.

To investigate heat transfer of thin strips of small dimensions in relation to the parameters of the formed waves, a nickel corrugated strip with a thickness of. 0.05 5.0 mm in width was studied with consideration of the possibility of practical application of same. The distance between the corrugations was varied from 10 to 26 mm, height from 1 to 6 mm. The results confirmed that, with the aid of artificial tuination of the boundary layer, it is possible to considerably intensify the process of heat transfer. The optimum dimensions. are: distance between corrugations 20 mm; height of corrugations 4 mm. The applications of such wavy strips during the construction of heat exchange surfaces for industrial heat exchangers will offer the possibility of reducing their overall dimensions, cut metal consumption and raise the efficiency of the installation.

Monin, A. S.
DIFFUSION AT A FINITE SPEED, tr. by L. J. Goodlet. May 62 [24]p. 7 refs. AWRE/Trans/32; [DSIR] NLL M8855.
Order from OTS or SLA $2.60 62-32824

Trans. of A[kademiya] N[auk] SSR. Izvestiya. Seriya Geofizicheskaya, 1955, no. 3, p. 234-248.

DESCRIPTORS: *Gas flow, Turbulence, *Diffusion, Probability, Statistical processes, Atmospheric motion.

Murzinov, I. N.
THE FLOW OF GAS NEAR THE STAGNATION POINT OF A BLUNT BODY WITH A FINITE RATE OF EXCITATION OF VIBRATIONAL DEGREES OF FREEDOM. 30 Oct 62 [10]p. 7 refs. FTD-TT-62-1313.
Order from OTS or SLA $1.10 63-13897

Unedited rough draft trans. of Akademiya Nauk SSSR. Otdelenie Tekhnicheskikh Nauk. [Izvestiya:] Mekhanika i Mashinostroenie, 1961, no. 6, p. 33-36.

DESCRIPTORS: *Blunt bodies, *Supersonics, Stagnation point, Gas flow, Vibration, Shock waves, Thermodynamics, Relaxation time.

The influence of relaxation caused by excitation of vibrational degrees of freedom of a diatomic gas on flow in the region of the stagnation point of a blunt axisymmetric body moving at supersonic velocity was examined. The approximate solution of the problem was found. The parameters of the gas near the axis of symmetry between the body and the shock wave were determined. Using certain assumptions the solution was obtained in final form. Results on the influence of relaxation on the separation of a shock wave as a sphere moves in air, considered to be a mixture of molecular oxygen and nitrogen, are given. (Author)

Tumashev, G. G.
INVERSE BOUNDARY-VALUE PROBLEMS AND PRACTICAL METHODS FOR THEIR SOLUTION. 5 June 62 [10]p. 3 refs. FTD-TT-62-675. AD-286 129
Order from OTS or SLA $1.10 62-32304

Unedited rough draft trans. of Izvestiya Vysshikh Uchebnykh Zavedenii. Energetika (USSR) 1961 [v. 4] no. 2, p. 103-108.

DESCRIPTORS: *Airfoils, Construction, *Aerodynamics, Fluid mechanics, *Hydraulic systems, Pressure, Aerodynamic configurations, Numerical methods and procedures, Differential equations, Integral equations.

The problems examined are those of (1) airfoil construction by a chord diagram, and (2) the construction of the base of a hydraulic installation with a given extinguishing pressure head along the width of the apron.

Guseva, O. V.
A NONSTEADY-STATE BOUNDARY-VALUE PROBLEM OF THE HYDRODYNAMICS OF A VISCOUS INCOMPRESSIBLE FLUID. 8 June 62 [20]p. 7 refs. FTD-TT-62-710, AD-286 122.
Order from OTS or SLA $1.60 62-32424

Unedited rough draft trans. of Leningrad U. Vestnik (USSR) 1961 [v. 16, no. 19] Seriya Matematiki Mekhanika i Astronomii, no. 4, p. 122-137.

DESCRIPTORS: Fluids, *Fluid flow, Viscosity, *Hydrodynamics, Boundary layer, Potential theory, Tensor analysis, Functional analysis, Green's function, Complex variables, Inequalities, Integrals.

We construct a regularized Green's tensor (parametrics) for a linear problem in a three-dimensional half-space and use it to study the corresponding nonlinear problem. The a priori bound is proven for the solution in the large: assuming that the solution is bounded in a metric which is determined by an energy inequality, it is shown that it and its first space derivatives satisfy Lipshitz' integral condition. The proofs are based upon the bounds to be established for the parametrics. (Author)

Khokhlov, V. A.
VELOCITY CHARACTERISTICS OF A HYDRAULIC MOTOR WITH SPOOL-VALVE CONTROL [Skorostnye Kharakteristiki Gidravlicheskikh Ispolnitel'nykh Mekhanizmov s Zolotnikovym Upravleniem]. [1961] 14p. 4 refs. MDF K-118.
Order from OTS or SLA $1.60 62-23158

Trans. of Avtomatika i Telemekhanika (USSR) 1955, v. 16, no. 5, p. 421-430.
Another trans. is available from LC or SLA mi$6.30, ph$19.80 in 59-14153, F-TS-10051/V [1958] [124]p.

DESCRIPTORS: *Hydraulic servomechanisms, *Servomotors, Velocity, Control systems, *Hydraulic fluids, Fluid flow, Orifices.

An equation is given which determines the velocity of piston motion of a hydraulic motor with spool-valve control under the action of an external load. The concept of a hydraulic motor with unit dimensions is introduced. A standard set of curves is constructed for such a motor which enables the velocity of the piston motion for each specific motor to be determined as a function of the spool-valve displacement and of the external load by a simple scale conversion. (Author)

Lyshevskii, A. S.
A STUDY OF THE LAWS OF MOTION OF AN ATOMIZED STREAM OF LIQUID. 1 Mar 62 [14]p. 7 refs. FTD-TT-61-414.
Order from OTS or SLA $1.60 62-23664

Unedited rough draft trans. of Izvestiya Vysshikh Uchebnykh Zavedenii. Energetika (USSR) 1960 [v. 3] no. 6, p. 136-144.

DESCRIPTORS: Liquids, *Fuel sprays, *Atomization, Hydrodynamics, Fuel injection, Pressure, Spray nozzles, High-speed photography.

The motion of an atomized stream of liquid was investigated on specially constructed apparatus. The apparatus consisted of a twelve-piston fuel pump run by a d.c. electric motor, a high-pressure fuel collector, a special chamber and a camera for taking high-speed pictures. Three series of experiments were made: the first series was at various air counter pressures in the chamber, the second at various injection pressures and the third at various nozzle aperture diameters. When measuring one of the characteristic parameters, all others remained strictly unchanged in the experiment. The results obtained from the investigation were used to establish the fundamental laws of motion of an atomized stream of liquid.

Siemes, W. and Kauffmann, J. F.
THE PERIODIC DEVELOPMENT OF GAS BUBBLES ON NOZZLES. [1962] 30p. 3 refs.
Order from SLA $2.60 62-16649

Trans. of Chemical Engineering Science (Gt. Brit.) 1956, v. 5, p. 127-139.

DESCRIPTORS: *Hydrodynamics, *Nozzles, Fluid flow, *Bubbles, Periodic variations, Gases, Velocity, Density, Surface tension, Viscosity, Equations, Stroboscopes.

The volumes of gas bubbles, developed at small gas velocities on vertical, circular nozzles in liquids, were measured by using a stroboscope. Along with changing the gas velocity, the effects of variation of density, surface tension and viscosity of the liquid as well as the inner diameter and wall thickness of the nozzles were investigated. The formation of the gas bubbles in liquids of high and low viscosity was found to follow two different mechanisms. Two empirical equations based on the results obtained for the two ranges of viscosities were developed which permit calculation of the volumes of gas bubbles formed under these variable conditions. (Author)

METALLURGY

METALLOGRAPHY AND THE HEAT TREATMENT OF METALS, 1961, NO. 11: SELECTED ARTICLES. 24 Oct 62 [29]p. 16 refs. FTD-TT-62-1245.
Order from OTS or SLA $2.60 63-13387

Unedited rough draft trans. of #Metallovedenie i Termicheskaya Obrabotka Metallov (USSR) 1961, no. 11, p. 25-33 and 36-40.

DESCRIPTORS: *Metals, *Heat treatment, *Steel, *Metallography, *Stainless steel, Nitrogen, Manganese alloys, Nickel alloys, Mechanical properties, Deformation, *Helical springs, Dispersion hardening, Stresses, Structural properties, Temperature.

Contents:
The replacement of nickel by manganese and nitrogen in stainless steels, by A. A. Babakov
Kh 17N4G9 (E1878) steel, a substitute for steels of the 1Kh18N9 and 1Kh18N9T type, by V. V. Sachkov and others
Helical springs fabricated from 3Kh13 steel, by A. P. Selyavo and others.

REFERATIVNYI ZHURNAL. METALLURGIYA (USSR) 1961, NO. 4, ABSTRACTS 4A19-4J148: SELECTED TRANSLATIONS OF ABSTRACTS OF ARTICLES BY CHINESE AUTHORS, OR PERTAINING TO COMMUNIST CHINA (Soviet Abstracts, Metallurgy). 30 Jan 62, 35p. JPRS: 12222.
Order from OTS $1.00 62-11127

Complete translations of the Russian-language abstracts of articles originally published in the Sino-Soviet bloc.

DESCRIPTORS: *Metallurgy, *Abstracts, *China, Refractory materials, Cast iron, Rare earth elements, Ores, Powder metallurgy, Pressure, Heat treatment, Welding, Metallography, Steel, Corrosion.

Aoyama, Y., Usui, H., and Matsunaga, A.
PERFORMANCE OF TAR-BONDED MAGNESITE BRICK LININGS OF THE AMAGASAKI BASIC OXYGEN FURNACE. Dec 62, 1300 words.
Order from HB $4.40 HB-5677

Trans. of Tetsu to Hagane (Japan) 1962, v. 48, no. 4, p. 472-473.

DESCRIPTORS: *Blast furnaces, Magnesite, *Brick, Tar, *Combustion chamber liners.

Apold, Arne.
CARBON OXIDATION IN THE WELD POOL. 1962, 137p.
Order from MACM $5.00

Trans. of unidentified Norwegian mono., n.p., n.d.

DESCRIPTORS: *Carbon, *Oxidation, Arc welding, *Welds, Liquid metals, Carbon, Steel, Measuring devices, Errors.

Bardin, I. P.
TWENTY-FIVE YEARS OF SOVIET METALLURGY. [1962] 2p.
Order from OTS or SLA $1.10 62-16793

Abstract trans. of Akademiya Nauk SSSR. Otdelenie Tekhnicheskikh Nauk. Izvestiya, 1943, no. 1/2, p. 3-9.

DESCRIPTORS: Metallurgy.

Eisenhuth, C. and Martin, M.
THE EFFECT OF AN INCREASED IRON SULPHATE CONTENT IN SULPHURIC ACID PICKLING SOLUTIONS ON THE TECHNOLOGICAL PROPERTIES OF PICKLED WIRES. [1960] [19]p.
Order from SLA $1.60 62-16849

Trans. of Stahl und Eisen (West Germany) 1959, v. 79, no. 25, p. 1862-1867.
Another trans. is available from BISI £ 4 5s as BISI-1634 [1960].

DESCRIPTORS: *Wire, Processing, Mechanical properties, *Pickling compositions, *Sulfuric acid, *Iron compounds, *Sulfates.

For abstract see Technical Translations 4: 55, 1960.

Faulstich, R.
ROOT WELDING OF HEAVY DUTY PIPE IN LOW AND HIGH ALLOY STEEL. Dec 62.
Order from BISI £7 5s BISI-3044

Trans. of Schweissen und Schneiden (West Germany) 1961, v. 13 [no. 3] p. 110-114 and [no. 4]p. 160-165.

DESCRIPTORS: *Welding, Steel, *Pipes.

Fuji, T. and Ura, S.
RATE OF CARBON ELIMINATION IN THE BASIC OXYGEN LD FURNACE. Dec 62, 1400 words.
Order from HB $4.60 HB-5758

Trans. of Tetsu to Hagane (Japan) 1962, v. 48, no. 11, p. 1372-1374.

DESCRIPTORS: *Carbon, *Blast furnaces, Separation, Oxygen.

Galkin, N. P., Maiorov, A. A., and Veryatin, U. D.
THE TECHNOLOGY OF THE TREATMENT OF URANIUM CONCENTRATES, tr. ed. by Reginald W. Clarke. 1962, 205p.
Order from MACM $7.50

Trans. of mono. [Tekhnologiya Pererabotki Kontsentratov Urana, Moscow, 1960].
Another trans. is available from OTS $2.50 as AEC-tr-4514, May 61, 136p.

DESCRIPTORS: *Uranium, Ions, Ores, *Uranium compounds, Oxides, Fluorides, USSR, History, Production, Purification, Safety, Physical properties, Preparation.

For abstract see Technical Translation 6: 861, 1961.

Gertsriken, S. D. and Yatsenko, T. K.
DÉTERMINATION DES PARAMÈTRES DE DIFFUSION DU FER SUIVANT LES JOINTS DE GRAINS DU COBALT, ET DU COBALT SUIVANT LES JOINTS DE GRAINS DU CUIVRE (Opredelenie Parametrov Diffuzii Zheleza po Granitsam Zeren Kobal'ta po Granitsam Zeren Medi) [Determining the Diffusion Parameters of Iron Along Cobalt Grain Boundaries and of Cobalt Along Copper Grain Boundaries] tr. by de Trezvinsky. 24 Mar 62 [11]p. (Russian text included) 2 refs. CEA Trans. no. R 1584 (text in French).
Order from OTS or SLA $1.60 62-33267

Trans. in French of Akad[emiya] Nauk URSR, Kiev. Inst[ytut Metallofizyky. Sbornik Nauchnykh Rabot] 1960, no. 11 [p. 117-120].

DESCRIPTORS: *Grains (Metallurgy) *Copper, *Cobalt, *Iron, *Diffusion, Determination.

Greulich, E.
THE EFFECT OF SOLVENTS AND IMPREGNATING LACQUERS ON SYNTHETIC RESIN ENAMELED WIRE. [1962] 11p. (figs. tables refs. omitted).
Order from SLA $1.60 62-18344

Trans. of Kunststoffe (Germany) 1944, v. 34 [no. 3] p. 51-57.

DESCRIPTORS: *Wire, *Enamel coatings, *Plastics, Varnishes, Impregnation, Organic solvents, Chemical properties.

With the aid of the "pencil test", which makes it possible to determine the hardness of the enamel coating on enameled wires, studies were performed on the behavior of synthetic resin enameled wire toward the action of solvents and lacquers (comparative tests also being conducted on oil-enamel coatings). In most instances the synthetic resin enameled wires are fundamentally at an advantage. A decided improvement in the behavior of all enameled wire can be achieved by longer "tempering" at 110° to 120°. (Author)

Iijima, Y. and others.
OBSERVATIONS ON THE INJECTION OF OIL INTO THE BLAST FURNACE. Dec 62, 1000 words.
Order from HB $3.50 HB-5806

Trans. of Tetsu to Hagane (Japan) 1962, v. 48, no. 11, p. 1219-1221.

DESCRIPTORS: *Blast furnaces, Injection, *Fuel oils, Combustion.

Ispas, M.
COMPARATIVE DATA ON THE USE OF NATURAL GAS IN BLAST FURNACES. Dec 62, 500 words.
Order from HB $2.30 HB-5771

Trans. of Metalurgia si Constructia de Masini (Rumania) 1962, v. 14, p. 654.

DESCRIPTORS: *Natural gas, *Blast furnaces, Coke, Fuels, *Fuel injectors, Design.

Korzh, P. D. and Ivanov, V. I.
DETERMINATION OF IRON IN BLAST-FURNACE SINTER BY ABSORPTION OF RADIOACTIVE RADIATION. Dec 62, 650 words.
Order from HB $2.50 HB-5737

Trans. of #Zavodskaya Laboratoriya (USSR) 1962, v. 28, no. 8, p. 965-966.

DESCRIPTORS: *Iron, *Blast furnaces, Determination, Absorption, Radioactivity, Sinters.

Krupkowski, A. and Litwora, A.
INFLUENCE OF THE SPEED OF TESTING ON THE RESISTANCE OF METALS TO PLASTIC DEFORMATION. Dec 62.
Order from BISI 4 10s BISI-2906

Trans. of Revue de Métallurgie. Memoires Scientifiques (France) 1962, v. 59 [no. 2] p. 147-159.

DESCRIPTORS: Metals, *Plasticity, *Deformation, Velocity, Tests, Resistance.

Kusenko, F. G. and Gel'd, P. V.
ON EQUILIBRIUM IN THE Nb-C-O SYSTEM. [1962] [8]p. 19 refs.
Order from OTS or SLA $1.10 62-18258

Trans. of [Izvestiya Vysshikh Uchebnykh Zavedenii. Tsvetnaya Metallurgiya (USSR) 1961, v. 4, no. 2, p. 43-52].
Another trans. is available from OTS or SLA $1.60 as AEC-tr-4867 [1961] 11p.

DESCRIPTORS: Metallic compounds, *Niobium compounds, *Oxides, Reduction, Thermodynamics, *Chemical equilibrium, Carbides, *Oxygen, *Carbon, Carbon compounds, Monoxides.

For abstract see Technical Translations 8: 488, 1962.

Leshchinskaya, E. I. and Rostovtsev, S. T.
MINERAL COMPOSITION OF FLUXED SINTER AND SOME SPECIAL FEATURES OF ITS REDUCTION, I. Dec 62. 3600 words.
Order from HB $9.70 HB-5626

Trans. of Izvest[iya] V[ysshikh] U[chebnykh] Z[avedenii]. Chern[aya] Met[allurgiya] (USSR) 1962, no. 3, p. 12-23.

DESCRIPTORS: Composite materials, *Chemical analysis, *Sinters, Dynamics, Blast furnaces.

Maehara, S., Morita, S., and Hirose, Y.
STUDY OF THE DEPHOSPHORIZING REACTION IN A FIVE-TON EXPERIMENTAL OXYGEN FURNACE. Dec 62, 1400 words.
Order from HB $4.20 HB-5270

Trans. of Tetsu to Hagane (Japan) 1958, v. 44, no. 9, p. 1058-1060.

DESCRIPTORS: *Phosporous, Separation, *Blast furnaces, Oxygen.

Ukrainskii, Yu. M., Novoselova, A. V., and Simanov, Yu. P.
INVESTIGATION OF THE VANADIUM TELLURIUM SYSTEM. [1961] 7p. 9 refs. MDF U-103.
Order from OTS $0.50 62-11235

Trans. of N[auchnye] D[oklady] V[ysshei] Sh[koly]. Khim[iya] i Khim[icheskaya] Tekh[nologiya] (USSR) 1959, no. 1, p. 62-66.

DESCRIPTORS: *Vanadium compounds, *Tellurides, Phase studies, *Crystal structure, Alloys.

Valuev, N. I.
METHOD OF INVESTIGATING THE HARDNESS OF TITANIUM- AND CHROMIUM-CARBIDE-BASE CERMETS AT NORMAL AND ELEVATED TEMPERATURES. 8 Jan 63 [11]p. 5 refs. JPRS: 17040.
Order from OTS or SLA $1.10 63-13831

Trans. of Izvestiya Vysshikh Uchebnykh Zavedenii. Mashinostroenie (USSR) 1962, no. 6, p. 124-128.

DESCRIPTORS: *Powder metallurgy, *Cermets, *Titanium compounds, *Chromium compounds, Carbides, Hardness, Determination, Temperature, Binders, Bearings, Heat-resistant materials.

The article deals with the question concerning the determination of hardness of a number of titanium- and chromium-carbide-base cermets; results of determination of the hot hardness values are given for nine cermets with heat-resisting binders; the causes of extensive straggling of experimental data are considered; and the procedure employed for determining the hardness of such materials is amended. (Author)

Vigdorovich, V. N., Ivleva, V. S., and Krol', L. Ya.
ON THE PURIFACTION OF ANTIMONY BY THE METHOD OF ZONE REFINING. [1960] 8p. 13 refs.
Order from OTS $0.50 62-11245

Trans. of A[kademiya] N[auk] SSSR. O[tdelenie] T[ekhnicheskikh] N[auk]. Izvestiya: M[etallurgiya] i T[oplivo] 1960, no. 1, p. 44-49.

DESCRIPTORS: *Antimony, *Purification, *Zone melting.

Yakushev, A. I.
EFFECT OF MANUFACTURING TECHNOLOGY AND BASIC THREAD PARAMETERS ON THE STRENGTH OF THREADED CONNECTIONS. 1962, approx. 250p.
Order from MACM $10.00

Trans. of mono. [Vliyanie Tekhnologii Izogotovleniya i Osnovnykh Parametrov Rez'by na Prochnost' Rez'bovykh Soedinenii, Moscow, 1956].

DESCRIPTORS: Industrial research, *Screw threads, *Metal joints, Metals, *Stresses, Bolts, Microstructure, Hardness.

Zitter, H.
EFFECT OF SAMPLING, TYPE OF ELECTRODE AND WELDING CONDITIONS ON HYDROGEN CONTENT IN A WELD. Dec 62.
Order from BISI £3 15s BISI-3068

Trans. of Schweisstechnik (Austria) 1962, v. 16 [no. 2] p. 15-21.

DESCRIPTORS: Welding, *Hydrogen, *Welds, Electrodes.

Ferrous Metals

USSR INDUSTRIAL DEVELOPMENT: SOVIET FERROUS METALLURGY NO. 90. 27 Dec 62 [32]p. JPRS: 16869.
Order from OTS or SLA $3.60 63-13658

Trans. of #Metallurg (USSR) 1962 [v. 7] no. 11, p. 5-10; Narodnoe Khozyaistvo Uzbekistana (USSR) 1962 [v. 4] no. 9, p. 24-26; and from Rabochaya Gazeta (USSR) 1962, 31 Oct, p. 2; Pravda, Moscow (USSR) 1962, 2 Sep, p. 1; 8 Oct, p. 2.

DESCRIPTORS: *Industrial production, *Metallurgy, *Steel, Smelting, Rolling mills, *Iron, Ores (Metal sources), Ores (Non-metallic), Minerals, Geological survey, Industrial plants, Construction, Supplies, Scheduling, Manufacturing methods.

Contents:
The development of steel smelting in oxygen converters, by S. G. Afanas'ev
Reserves of rolling production for the service of Communism, by B. S. Shapiro
The ore base for the ferrous metallurgy of the USSR, by I. S. Shapiro
Possibilities of developing ferrous metallurgy in Uzbekistan, by V. Gar'kovets
Largest ball-bearing pipe shop in the country, by I. Timoshchenko
Reduced construction time of Lipetskaya Magnitka sintering mill, by V. Razumovskii and others
Why construction of the oxygen converter shop is slow, by N. Il'inskii and V. Rusakov.

USSR INDUSTRIAL DEVELOPMENT: SOVIET FERROUS METALLURGY NO. 93. 9 Jan 63 [18]p. JPRS: 17069.
Order from OTS or SLA $1.60 63-13824

Trans. of Nauchno-Tekhnicheskie Obshchestva SSSR, 1962 [v. 4] no. 11, p. 31-33; and from Referativnyi Zhurnal. Gornoe Delo (USSR) 1962, no. 10, item no. 10A159; Stroitel'naya Gazeta (USSR) 1962, 2 Nov, p. 1.

DESCRIPTORS: *Industrial production, *Iron, Metallurgy, *Mining engineering, *Ores, Deposits, *Furnaces, Oxygen, *Railroads, Training, *Containers, Pneumatic devices.

Contents:
Mine construction in the Kursk magnetic anomaly, by M. Kuntysh
The status of the Soviet iron ore basins
Oxygen converters: the future of metallurgy, by A. Leskov
Schools for railroad workers in Azerbaidzhan, by N. Alekhin
A granular-material bin with an air cushion, by A. Kozina.

USSR INDUSTRIAL DEVELOPMENT: SOVIET FERROUS METALLURGY NO. 94. 14 Jan 63 [30]p. JPRS: 17115.
Order from OTS or SLA $2.60 63-15101

Trans. of Nauchno-Tekhnicheskie Obshchestva SSSR, 1962 [v. 4] no. 10, p. 12-13; #Metallurg (USSR) 1962 [v. 7] no. 10, p. 4-7 and 11-12; and from Sovetskaya Belorussiya (USSR) 1962, 11 Oct, p. 2; Rabochaya Gazeta (USSR) 1962, 18 Nov, p. 2; Stroitel'naya Gazeta (USSR) 1962, 5 Oct, p. 1.

DESCRIPTORS: *Industrial production, *Metallurgy, Machines, Construction, Construction materials industry, Scheduling, Alloys, Hardness, *Steel, Slags, Electric furnaces, Sheets, Processing, Vacuum apparatus, Annealing, Quality control.

Contents:
Achievements of metallurgists of Mogilev plant imeni Myasnikov
News of Zhdanov plant of heavy machine building disorder in construction of Kachkanar, by V. Karpov
Disorder in construction of Kachkanar beneficiation combine, by I. Morozov
Public inspection of the implementation of plans of scientific research works at the Moscow combine of hard alloys, by A. Sibirskii
New method of manufacture of special steel, by G. V. Plechun
Vacuum processing of transformer steel, by E. I. Moshkevich
First production report of the thermal shop of the "Dneprospetsstal" plant following restoration of the plant, by N. D. Sedov and R. D. Mininzon.

USSR INDUSTRIAL DEVELOPMENT: SOVIET FERROUS METALLURGY NO. 95. 15 Jan 63 [39]p. JPRS: 17143.
Order from OTS or SLA $3.60 63-15093

Trans. of Metallurgicheskaya i Gornorudnaya Promyshlennost' (USSR) 1962, no. 5[17] p. 3-7, 12-19, 73-75, 86-87.

DESCRIPTORS: *Industrial production, *Metallurgy, Blast furnaces, *Steel castings, Slags, Melting, *Steel, Oxygen, Carbon, Mechanical properties, Quality control, Open hearth furnaces, Smelting, *Cast iron.

Contents:
Designing the world's largest blast furnace, by M. B. Rozenshtrakh and M. B. Kutner
Present status and prospects for further development of electroslag remelting in the Ukraine, by B. E. Paton and others
Smelting of 32GS steel in oxygen converters, by P. S. Rubinskii and I. I. Entin
Seminar on "achievements and developments prospects of steel production in the Dnepropetrovskii economic administrative region"
New methods of intensifying steel production at the Zaporozhstal' and Krivoi Rog imeni Lenin plants.

Aschendorff, K.-K., Köhler, E. and others.
SEGREGATION IN RIMMED STEEL INGOTS. Dec 62.
Order from BISI 6 BISI-3036

Trans. of Stahl und Eisen (West Germany) 1962, v. 82 [no. 20] p. 1356-1366.

DESCRIPTORS: *Separation, *Steel, *Phosphorus, Sulfur, Steel industry, Steel castings.

Dubinin, G. N.
HEAT RESISTANCE (INDUCED BY) SURFACE ALLOYING OF STEEL (Shzaroupornost Pree Poverkhnostom Legearovanee Stali Metallami) tr. by D. J. S. [1961] 15p. 21 refs. H 4982.
Order from OTS $0.50 61-11160

Trans. of unidentified article.

DESCRIPTORS: *Heat resistant alloys, *Steel, Surface properties, *Iron alloys, Corrosion-resistant alloys, High temperature research.

Engell, H. J.
INVESTIGATIONS ON THE MECHANISM OF OXIDATION OF PURE IRON AND LOW ALLOY STEELS. Dec 62.
Order from BISI 10 BISI-3020

Trans. of Zeitschrift für Elektrochemie (West Germany) 1959, v. 63, Oct, p. 835-859.

DESCRIPTORS: *Oxidation, *Iron, Steel, *Alloys, Carbon, Dynamics, Reaction kinetics.

Glazkov, P. G., Murzov, K. P., and Kondratyuk, A. M.
TWO YEARS OF EXPERIENCE IN THE CONTINUOUS CASTING OF STEEL. 7 Jan 63 [12]p. JPRS: 17023.
Order from OTS or SLA $1.60 63-13860

Trans. of #Metallurg (USSR) 1962 [v. 7] no. 11, p. 19-21.

DESCRIPTORS: *Steel, Manufacturing methods, *Casting, Industrial equipment, *Rolling mills.

Granjon, H.
HARDENABILITY AND WELDABILITY OF STEEL. 3 Nov 48, 5p. (figs. omitted).
Order from SLA $1.10 62-18352

Trans. of Revue de Métallurgie (France) 1947 [v. 44, no. 5/6] p. 187-192.

DESCRIPTORS: *Steel, Hardenability, Arc welding, Mechanical properties, Transformations.

Hasegawa, M. and Onoda, I.
URANIUM ADDITIONS TO LOW-CARBON STEELS. Pt. 1 of Influence of Uranium Additions on Iron and Steel. Dec 62, 800 words.
Order from HB $3.30 HB-5808

Trans. of Tetsu to Hagane (Japan) 1962, v. 48, no. 11, p. 1438-1439.

DESCRIPTORS: *Uranium alloys, *Steel.

Keetman, E. and Niedner, P.
CONTINUOUS-CYCLE PICKLING, I-II. Dec 62.
Order from BISI 8 BISI-2972

Trans. of Bänder, Bleche, Rohre (West Germany) 1961 [no. 4] p. 162-169 and [no. 6] p. 273-278.

DESCRIPTORS: *Pickling, *Steel industry, Hydrochloric acid, Sulfuric acid, Regeneration.

Kitamura, Y. and others.
EFFECT OF VACUUM CASTING ON THE QUALITY OF STEELS FOR ROLLING. Pt. 1 of Investigation into the Vacuum Treatment of Molten Steel. Dec 62, 1100 words.
Order from HB $4.20 HB-5807

Trans. of Tetsu to Hagane (Japan) 1962, v. 48, no. 11, p. 1338-1340.

DESCRIPTORS: *Vacuum apparatus, *Steel, Ultrasonic radiation, *Casting, *Quality control, Non-destructive testing.

Kopersak, N. I.
METALLOGRAPHIC DEVELOPMENT OF THE 475°C (890°F) EMBRITTLEMENT IN AUSTENITIC-FERRITIC CHROME-NICKEL STEEL WELDS. Dec 62, 400 words.
Order from HB $2.30 HB-5288

Trans. of #Zavodskaya Laboratoriya (USSR) 1962, v. 28, no. 8, p. 968-969.

DESCRIPTORS: *Hydrogen embrittlement, Austenite, Ferrites, Chromium alloys, Nickel alloys, Steel, *Welds, Metallography, Hardening, Detection.

Kraus, T.
RAPID DETERMINATION OF OXYGEN IN STEEL BY A HIGH-VACUUM FUSION PROCEDURE. Dec 62, 3300 words.
Order from HB $8.90 HB-5716

Trans. of Archiv [für das] Eisenhüttenwesen (West Germany) 1962, v. 33, no. 8, p. 527-531.

DESCRIPTORS: Steel, Oxygen, Gas analysis, Vacuum apparatus.

Krisch, A.
THE EVALUATION OF LONG-TIME RUPTURE TESTS. Dec 62.
Order from BISI £ 5 BISI-2839

Trans. of Archiv für das Eisenhüttenwesen (West Germany) 1962, v. 33 [no. 2] p. 107-114.

DESCRIPTORS: *Steel, Rupture, Tests.

Liberman, L. Ya. and Sokolova, M. N.
HEAT-RESISTANT STEEL AS A BOLTING MATERIAL FOR STEAM POWER INSTALLATIONS. [Sep 61] 17p. 4 refs. BISI-2451; [DSIR] NLL M.3550.
Order from OTS or SLA $1.60 62-24634

Trans. of Teploenergetika (USSR) 1961, v. 8, no. 5, p. 28-34.
Other translations are available from BISI £3 15s as BISI-2451, Sep 61 and from FT $14.25 as FT-606 [1961] 14p.

DESCRIPTORS: *Heat resistant alloys, *Steel, Steam pipes, *Steam power plants, *Steel tubing, *Bolts.

Lucke, F., Serbent, H., and Meyer, G.
EXPERIMENTS ON REDUCTION OF IRON ORES IN THE ROTARY KILN (KRUPP IRON SPONGE PROCESS). Dec 62.
Order from BISI £5 5s BISI-3063

Trans. of Stahl und Eisen (West Germany) 1962, v. 82 [no. 18] p. 1222-1232.

DESCRIPTORS: *Reduction (Chemistry), *Iron, *Ores, *Rotary furnaces, Open hearth furnaces, Sulfur, Metal sponges.

Marincek, B.
THE MELTING OF CAST IRON IN ELECTRIC ARC AND INDUCTION FURNACES. Dec 62, 3300 words.
Order from HB $9.50 HB-5586

Trans. of Giesserei (West Germany) 1962, v. 49, no. 15, p. 414-417.

DESCRIPTORS: *Cast iron, Melting, *Electric furnaces, Induction heating.

Moroz, P. S. and Mingin, T. E.
HYDROGEN BRITTLENESS OF STEEL (ACID BRITTLENESS). 15 Oct 62 [9]p. FTD-TT-62-1242; AD-288 525.
Order from OTS or SLA $1.10 63-13378

Unedited rough draft trans. of #Metallovedenie i Termicheskaya Obrabotka Metallov (USSR) 1962, no. 4, p. 2-6.

DESCRIPTORS: *Steel, *Hydrogen embrittlement, Mechanical properties, Deformation.

Müller, C. A. and Plockinger, E.
INVESTIGATION OF METALLURGICAL PROCESSES USING THE RESIDUE ANALYSIS. Dec 62.
Order from BISI £6 15s BISI-2992

Trans. of Radex-Rundschau (Austria) 1957, no. 5/6, p. 738-753.

DESCRIPTORS: *Steel, *Slags, Analysis.

Niederstrasser, W.
ON THE PRODUCTION OF ERW STEEL TUBE. Dec 62.
Order from BISI £4 5s BISI-3043

Trans. of Technische Mitteilungen (West Germany) 1961, v. 54 [no. 11] p. 448-451.

DESCRIPTORS: Production, *Steel tubing, Processing, Manufacturing methods, Welds, *Industrial plants.

Okhrimenko, Ya. M., Tsibanova, M. S. and Shibalov, N. S.
COLD HARDENING AND RECRYSTALLIZATION OF EI617 ALLOY. 31 Oct 62 [14]p. 3 refs. FTD-TT-62-1318.
Order from OTS or SLA $1.60 63-13875

Unedited rough draft trans. of Izvestiya V[ysshikh] U[chebnykh] Z[avedenii]. Chernaya Metallurgiya (USSR) 1962, no. 3, p. 95-102.

DESCRIPTORS: *Alloys, *Steel, Hardening, Crystallization, Microstructure, Deformation, Forging.

Ornig, H.
PROCESSES IN STEEL RECARBURNISING BATHS (EXPERIMENTS WITH C^{14}). Dec 62.
Order from BISI £3 5s BISI-3074

Trans. of Atompraxis (West Germany) 1960, v. 6, no. 4/5, p. 129-132.

DESCRIPTORS: *Steel, Processing, *Labeled substances, Carbonates, Cyanates, Cyanides, Temperature.

Paton, B. E., Pridnatsev, M. V. and others.
ACHIEVEMENTS AND PROSPECTS OF ELECTROSLAG REMELTING [AND] STAINLESS STEELS WITH REDUCED NICKEL CONTENT. 7 Jan 63 [25]p. 17 refs.
[PRS: 17016.
Order from OTS or SLA $2.60 63-13839

Trans. of #Stal' (USSR) 1962 [v. 22] no. 11, p. 1001-1005 and 1035-1039.

DESCRIPTORS: *Electric welding, *Slags, Melting, *Stainless steel, Chromium, *Ferrites, *Austenite, Nickel, Reduction, Mechanical properties.

Renoul, G.
THE CONTINUOUS CASTING OF AUTOMOBILE STEELS. Dec 62, 4500 words.
Order from HB $12.60 HB-5645

Trans. of Berg- und Hüttenmännische Monatshefte (Austria) 1962, v. 107, no. 4, p. 168-173.

DESCRIPTORS: *Steel, *Casting, Automotive industry, Manufacturing methods.

Roth, Walther A. and Richter, Helmuth.
THE HEAT OF FORMATION OF IRON SLAGS FROM THE OXIDES (Die Bildungswärmen von Eisenschlacken aus den Oxyden). [1962] [12]p. (foreign text included)
4 refs.
Order from SLA $1.60 62-18133

Trans. of Archiv für das Eisenhüttenwesen (Germany) 1938, v. 11, no. 9, p. 417-419.

DESCRIPTORS: *Thermochemistry, *Iron, Smelting, *Slags, Heat of formation, Oxides, Silicic acids, Glass.

Report is made about the heats of solution of four different slags of the iron smelting operations, and the heat of formation from the oxides is calculated approximately. The latter decreases with increasing silicic acid content. The same observation is made on sodium waterglasses. That the "acid" process offers particular thermal advantages is doubtful according to this, until exact calorimetric values are available.

Roux, Albert.
THE DETERMINATION OF HYDROGEN IN MILD STEEL ARC WELDS: METHOD OF PRESENTING THE RESULTS. [1962] 22p. (figs. tables omitted)
3 refs.
Order from SLA $2.60 62-18951

Trans. of Revue de Métallurgie (France) 1954, v. 51, no. 3, p. 192-202.

DESCRIPTORS: *Steel, *Arc welds, *Hydrogen, Determination.

Ryabov, R. A. and Gel'd, P. V.
INFLUENCE OF ALLOY ELEMENTS ON HYDROGEN PERMEABILITY OF STEELS AND BINARY ALLOYS ON AN IRON BASE. Dec 62.
Order from BISI $2.5 10s BISI-2698

Trans. of Izvestiya Vysshikh Uchebnykh Zavedenii. Chernaya Metallurgiya (USSR) 1959, no. 2, p. 83-92.

DESCRIPTORS: *Alloys, *Steel, *Additives, Hydrogen, Permeability, *Crystal lattices, Diffusion, *Iron.

Schwippert, H.
STEEL AND INDUSTRIAL DESIGNS. Dec 62.
Order from BISI $2.9 15s BISI-2974

Trans. of Stahl und Eisen (West Germany) 1962, v. 82 [no. 16] p. 1077-1092.

DESCRIPTORS: *Steel, Industrial research, Design.

Sigov, A. A. and Shurkal, V. A.
REDUCING PROCESSES IN THE SINTERING OF IRON ORES. Dec 62, 2100 words.
Order from HB $6.30 HB-5590

Trans. of Izvest[iya] V[ysshikh] U[chebnykh] Z[avedenii]. Chern[aya] Met[allurgiya] (USSR) 1962, no. 6, p. 26-31.

DESCRIPTORS: *Sintering, *Ores, *Iron, Chemical analysis, *Waste gases, Temperature, Fuels, Automation.

Smirnov, L. V., Sokolov, E. N., and Sadovskii, V. D.
INFLUENCE OF PLASTIC DEFORMATION IN THE AUSTENITIC PHASE ON BRITTLENESS IN THE ANNEALING OF STRUCTURAL ALLOY STEELS [Vliyanie Plasticheskoi Deformatsii v Austenitnom Sostoyanii na Khrupkost' pri Otpuske Konstruktsionnykh Legirovannykh Stalei]. [1961] 3p. 5 refs. MDF S-115.
Order from OTS $0.50 62-11379

Trans. of A[kademiya] N[auk] SSSR. Doklady, 1955, v. 103, no. 4, p. 609-610.
Another trans. is available from HB as HB-3672.

DESCRIPTORS: *Steel, Annealing, Brittleness, *Austenite, Crystallization, Plasticity, Deformation.

Takeshita, M. and others.
ON THE HEAT TREATMENT OF SOME HOT-WORK DIE STEELS. Dec 62, 1000 words.
Order from HB $3.80 HB-5798

Trans. of Tetsu to Hagane (Japan) 1962, v. 48, no. 11, p. 1454-1456.

DESCRIPTORS: *Heat treatment, *Steel, Dies, Hot-working, Hydrogen embrittlement.

Vinogradov, V. M.
AUTOMATION OF ELECTRIC ARC FURNACE STEELMAKING. Dec 62, 3100 words.
Order from HB $9.30 HB-5652

Trans. of Izvest[iya] V[ysshikh] U[chebnykh] Z[avedenii]. Chern[aya] Met[allurgiya] (USSR) 1962, no. 3, p. 67-76.

DESCRIPTORS: *Automation, *Electric furnaces, Control, *Steel.

Watanabe, S. and others.
RIMMED STEEL INGOTS SOLIDIFIED UNDER REDUCED PRESSURE. Dec 62, 1100 words.
Order from HB $4.20 HB-5805

Trans. of Tetsu to Hagane (Japan) 1962, v. 48, no. 11, p. 1340-1342.

DESCRIPTORS: Steel, *Vacuum apparatus, Pressure, Steel castings, *Castings.

Yaroshevich, V. D.
PROBLÈME DE LA DÉPENDANCE DE LA LIMITE D'ÉCOULEMENT DU FER ARMCO EN FONCTION DE LA TEMPERATURE [Temperature Dependence of the Creep Strength of ARMCO Iron] tr. by de Trezvinsky. 24 Mar 62 [14]p. 16 refs. CEA Trans. no. R 1583 (text in French).
Order from OTS or SLA $1.60 62-25074

Trans. in French of #Fiz[ika] Tverdogo Tela (USSR) 1961, v. 3, no. 10, p. 3207-3210.

DESCRIPTORS: *Iron, Creep, Temperature, Mechanical properties.

Dans le présent travail: (a) on a séparé les facteurs principaux qui font l'apport dans la limite d'écoulement du fer "ARMCO" et on a obtenu leur dépendance en fonction de la temperature; (b) on a montré, que le caractère de la limite d'écoulement en fonction de la température, se détermine principalement par variation, avec la température, de la résistance au mouvement des dislocations libres à travers le réseau de metal; (c) on a montré que la dépendance en fonction de la température des tensions, qui caractérisent le degré de liaison des dislocations avec les atomes d'additions, a le caractère linéaire. (Author)

Zimmer, K. O.
DE-OXIDATION TESTS WITH AN ALUMINIUM-TITANIUM ALLOY AND EFFECT OF THE PROPERTIES OF DEEP-DRAWING SHEET. Dec 62.
Order from BISI £2 10s BISI-3040

Trans. of Centre de Documentation Siderurgique. Circulaires d'Informations Techniques (France) 1961, v. 18, no. 11, p. 2415-2420.

DESCRIPTORS: *Steel, *Aluminum alloys, *Titanium alloys, Steel industry, *Drawing (Machine processing), Recrystallization.

Light Metals

Dolgopolov, N. N., Babat, G. I. and others.
METHOD OF OBTAINING METALLIC TITANIUM. 30 Oct 62 [5]p. FTD-TT-62-1292.
Order from OTS or SLA $1.10 63-13916

Unedited rough draft trans. of [Soviet] patent 113474, appl. no. 10615/575521/40a, 46_{50}, 3 Feb 55.

DESCRIPTORS: *Titanium compounds, Oxides, Chlorides, Decomposition, Electric discharges.

Obtaining metallic titanium from its oxides or chlorides, by a continuous process. The decomposition of titanium compounds is accomplished by the reaction of an electrode-less, high-frequency, electrical discharge at normal pressure, in an atmosphere of reactive gaseous matter, the supply and removal of which is accomplished continuously.

Poulain, H.
THE MILLING OF LIGHT ALLOYS. [1962] 19p. (figs. refs. omitted).
Order from SLA $1.60 62-18242

Trans. of [la] Métallurgie et [la] Construction Mécanique (France) 1944, v. 76, no. 2, p. 1-4 and no. 3, p. 1-4.

DESCRIPTORS: *Milling machines, *Alloys, Metals, Cutting tools.

Nonferrous (except light) Metals

SOVIET INDUSTRIAL DEVELOPMENT: SELECTED TRANSLATIONS ON SOVIET NONFERROUS METALLURGY (1). 19 July 61 [103]p. 22 refs. JPRS: 9742.
Order from OTS or SLA $10.50 61-27290

Trans. of Razvedka i Okhrana Nedr (USSR) 1960 [v. 26] no. 9, p. 1-6; no. 10, p. 1-4; [Izvestiya Vysshikh Uchebnykh Zavedenii]. Tsvetnaya Metallurgiya (USSR) 1960 [v. 3] no. 1, p. 84-90; no. 3, p. 155-160; 1961 [v. 4] no. 1, p. 5-6; 60-66, 86-88; Gornyi Zhurnal (USSR) 1961, no. 1, p. 3-5, 59-65; no. 2, p. 5-9; Promyshlennost' Armeni (USSR) 1961 [v. 4] no. 1, p. 23-24.

DESCRIPTORS: *Industrial production, Metallurgy, *Ores, Germanium, Indium, Gallium, Thallium, Cadmium, Selenium, Tellurium, Rhenium, Scandium, *Granite, *Tantalum, Deposits, *Lead, Smelting, *Copper, *Floatation, Chemical elements, Conferences, Economics, *Mining engineering, *Automation, *Aluminum, Electrolysis.

Contents:
Dispersed elements in nonferrous-metal ores and a technique for estimating reserves, by A. M. Bybochkin

Microlite-bearing granites; a promising new type of tantalum deposit, by A. A. Beus and A. A. Sitnin
Experience in soda electrosmelting of lead concentrates under semiindustrial conditions, by K. V. Sushkov and others
Increased complex utilization of raw materials in the urals copper-smelting industry, by G. A. Goncharov and I. M. Gratsershtein
Velocity floatation and improvement of floatation-machine performance, by V. G. Krangachev
Application of rare elements, by K. F. Klubnichkin
The fourth plenary session of the central administration of the NTO for nonferrous metallurgy, by V. A. Frolov
A major national-economic problem: mobilization of the internal reserves of the enterprises
Problems of automation of place equipment in the ore-mining industry, by Ya. B. Kal'nitskii and S. P. Vasil'evskii
The Degtyarka copper mine, by L. S. Mekler
Experience in automating production processes at nonferrous metals mines of the Sverdlovsk sovnarkhoz, by K. A. Dolinin and N. E. Indenbaum
Ways to intensify the electrolysis of aluminum, by L. Arutyunyan.

USSR INDUSTRIAL DEVELOPMENT: SOVIET NONFERROUS METALLURGY NO. 45. 14 Jan 63 [35]p. [JPRS: 1710].
Order from OTS or SLA $3.60 63-15100

Trans. of Narodnoe Khozyaistvo Uzbekistana (USSR) 1962 [v. 4] no. 9, p. 81-83; Razvedka i Okhrana Nedr (USSR) 1962 [v. 28] no. 10, p. 17-20; Na Stroikakh Rossii (USSR) 1962, no. 10, p. 17; and from Agitator (USSR) 1962, 19 Oct, p. 44-47; Ekonomicheskaya Gazeta (USSR) 1962 [no. 41(62)] 6 Oct, p. 11; Trud, Moscow (USSR) 1962, no. 280, 7 Oct.

DESCRIPTORS: *Industrial production, *Metallurgy, Refractory materials, Clay minerals, Zinc, Mica, Lead, Construction materials industry, Automation, Wastes (Industrial), Metals, Recovery.
Contents:
Cost of refractories in Central Asia could be reduced by using Angren kaolins, by Kh. Gazizov and A. Kutsenko
Chelyabinsk zinc plant tightens economic controls through special and hoc party commissions, by A. Barkov
Shortcomings noted in mica prospecting operations, by M. M. Dubovik and G. G. Rodionov
Ust'-Kamenogorsk lead-zinc combine justifies its title of enterprise of communist labor, by B. Odyashvili
A modern building-materials industry for Noril'sk mining and metallurgical combine, by V. Kolyada
Automation at Degtyarka mine in Urals results in fewer workers, by N. Ogolev
Ferrous-scrap collection neglected by Dzhezkazgan copper industry.

Estulin, G. V., Egorshina, T. V., and Burova, N.N.
PHASE COMPOSITION OF OXIDES OF NIOBIUM BASE ALLOYS. 30 Oct 62 [10]p. 11 refs. FTD-TT-62-1297.
Order from OTS or SLA $1.10 63-13922

Unedited rough draft trans. of #Fizika Metallov i Metallovedenie (USSR) 1962, v. 13, no. 4, p. 550-554.

DESCRIPTORS: *Niobium alloys, Oxides, *Scale, Phase studies, Chromium alloys, Titanium alloys, Vanadium alloys, Tungsten alloys, Zirconium alloys.

Scale of pure niobium and its base alloys, obtained by oxidation in the air at a temperature range of from 600 to 1 250°, consists of niobium pentoxide Nb_2O_5 of two allotropic forms - α and β. The temperature/stability boundary of the alpha-modification depends upon time and during exposure for a period of one hour and is situated at about 900°. Alloying of niobium with elements, reducing the rate of oxidation (Cr, Ti, V. Mo) displaces the temperature of allotropic conversion α β toward much lower temperatures.

Kieffer, R. and Benesovsky, F.
TUNGSTEN, ITS METALLURGICAL PROPERTIES AND USE. 30 Mar 49, 9p. (figs. tables refs. omitted).
Order from SLA $1.10 62-18398

Trans. of E[lektrotechnik] und M[aschinenbau] (Austria) 1958 [v. 75, no. 1/2] p. 17-24.

DESCRIPTORS: *Tungsten, Sintering, Powder alloys, Powder metallurgy, Metallography.

Kishkin, S. T., Lozinskii, M. G. and others.
THE EFFECT OF HIGH-TEMPERATURE PLASTIC DEFORMATION ON THE MECHANICAL PROPERTIES OF HEAT RESISTANT NICKEL-BASE ALLOYS [AND] AN INVESTIGATION OF THE POLYGONIZATION OF MOLYBDENUM BY MEANS OF HIGH TEMPERATURE METALLOGRAPHY. 14 Nov 62 [24]p. 17 refs. FTD-TT-62-1169.
Order from OTS or SLA $2.60 63-13914

Unedited rough draft trans. of #Metallovedenie i Termicheskaya Obrabotka Metallov (USSR) 1962, no. 1, p. 38-40 and 57-64.

DESCRIPTORS: *Heat resistant alloys, Nickel alloys, Tungsten alloys, Mechanical properties, Deformation, Plasticity, *Molybdenum alloys, Titanium alloys, Zirconium alloys, Crystallization, Microstructure, *Metallography, High temperature research.

Kornilov, I. I. and Polyakova, R. S.
INVESTIGATION OF THE HEAT STABILITY OF THE ALLOYS OF PLATINUM WITH RHODIUM, IRIDIUM, ALUMINUM AND CHROMIUM (Issledovanie Zharostoikosti Splavov Platiny s Rodiem, Iridiem, Alyuminiem i Khromom). [1962] [23]p. (foreign text included) 17 refs.
Order from OTS or SLA $2.60 62-18196

Trans. of Zhurnal Neorganicheskoi Khimii (USSR) 1958, v. 3, no. 11, p. 2553-2561.

DESCRIPTORS: Thermodynamics, *Platinum alloys, *Rhodium alloys, *Iridium alloys, *Aluminum alloys, *Chromium alloys, Stability, Oxidation.

It was found that the alloys of the system Pt- Rh at 1200° C would not oxidize. The alloy of Pt with Ir would oxidize the more and also loose the more weight, the higher the Ir therein, whereas any alloy of Pt with Al or Cr would show a weight increase. The results of these oxidation processes of these alloys were plotted in the shape of a composition- thermal stability diagram, which shows the oxidation of alloys as the function of the composition in the systems Pt-Rh, Pt-Ir, Pt- Al and Pt- Cr. (Author)

Rabinovich, B. N. and Chizhikov, D. M.
STUDY OF THE MUTUAL SOLUBILITY OF TITANIUM AND LEAD AT 600, 700 AND 800° TEMPERATURES. [1961] 5p. 3 refs. MDF R-100.
Order from OTS $0.50 62-11619

Trans. of A[kademiya] N[auk] SSSR. O[tdelenie] T[ekhnicheskikh] N[auk]. Izvestiya, 1956, no. 7, p. 114-117.

DESCRIPTORS: *Titanium, Powder metals, *Lead, Solubility, Chemical reactions, Chemical analysis, X-ray diffraction analysis.

The interaction between melted lead and powdered titanium in a vacuum or in an argon atmosphere starts at a temperature above 500°. Consequently, a homogeneous grey cake, the chemical compound Ti_4Pb, starts to form between the lead and the titanium at 500°. The reaction forming the chemical compound is very intense because of the high development of the surface of the powdered titanium. (Author)

Savitskii, E. M., Tylkina, M. A., Shishkina, L. L.
PHASE DIAGRAM OF A TUNGSTEN-RHENIUM SYSTEM AND THE PROPERTIES OF ITS ALLOYS. [1962] 14p. 11 refs.
Order from OTS or SLA $1.60 62-33186

Trans. of Akad[emiya] Nauk SSSR. O[tdelenie] T[ekhnicheskikh] N[auk]. Izvest[iya]: Metall[urgiya] i Toplivo, 1959, no. 3, p. 99-107.

DESCRIPTORS: *Tungsten, *Rhenium, Alloys, Eutectics, Phase studies, Physical properties, Hardness, Melting, Plasticity, Tensile properties, Annealing, Microstructure, Crystal structure, X-ray diffraction analysis.

Woldt, G.
ON THE CHROMATING OF NON-FERROUS METALS. Dec 62.
Order from BISI £5 5s BISI-2851

Trans. of Werkstoffe und Korrosion (West Germany) 1961, v. 12 [no. 8] p. 486-493.

DESCRIPTORS: *Chromium plating, *Metals, Corrosion Inhibition, Metallurgy, Plating.

Zakharova, G. B., Mishina, D. B., and Velmozhnyi, E. Ya.
NIOBIUM AND ITS ALLOYS. 17 Sep 62 [13]p. 10 refs. FTD-TT-62-1256; AD-287 719.
Order from OTS or SLA $1.60 63-13173

Unedited rough draft trans. of #Tsvetnye Metally (USSR) 1962, [v. 35] no. 4, p. 88-92.

DESCRIPTORS: *Niobium, *Niobium alloys, Elasticity, Physical properties, Heat-resistant metals and alloys, Chemical analysis, Mechanical properties.

Zaletaeva, R. P.
RESULTS OF STRESS-RUPTURE TESTING OF CAST NICKEL ALLOYS AT 800° - 24 Sep 62 [8]p. FTD-TT-62-720; AD-287 671.
Order from OTS or SLA $1.10 63-13170

Unedited rough draft trans. of Tsentral'nyi Nauchno-Issledovatel'skii Institut Tekhnologii i Mashinostroeniya, Moscow. Trudy (USSR) 1961, v. 101, p. 205-209.

DESCRIPTORS: *Nickel alloys, Casting, Rupture, Thermal stresses, Heat treatment, Mechanical properties, Tests.

At 800° the stress-rupture strength of alloy A is: at 1000 hr is 19 Kg/mm^2 (precision casting), 24 kg/mm^2 (sand mold casting); at 10,000 hr is 12 and 13 kg/mm^2 respectively for precision casting and sand mold casting. Alloy B has higher values of stress-rupture strength than alloy A at 800°: 37 kg/mm^2 for 1000 hr, 16 kg/mm^2 at 10,000. A change in the casting method of alloy A (precision casting and sand-mold casting) does not have any substantial effect on the magneture of the stress-rupture strength. (Author)

Structural Metallurgy and Corrosion

Aleksandrov, L. N.
INTERNAL FRICTION OF TUNGSTEN. 22 Oct 62 [7]p. 11 refs. FTD-TT-62-1319. AD-290 830
Order from OTS or SLA $1.10 63-13379

Unedited rough draft trans. of #Fizika Metallov i Metallovedenie (USSR) 1962, v. 13, no. 4, p. 636-639.

DESCRIPTORS: *Tungsten, *Internal friction, *Wire, Microstructure, *Tungsten alloys, Damping.

An investigation was made of the temperature dependence of relaxation internal friction and modulus of elasticity in shear in a tungsten VA-3 wire after recrystallization annealing. Internal friction was measured on a torsion pendulum by determing the damping of free oscillations of species with a length of up to 200 mm at a frequency of about 0.35 c. The temperature dependence of the shear modulus was determined by the change in square of oscillation frequencies.

Asano, E., Ishida, T., and Tan, H.
EFFECT OF MOLYBDENUM, MANGANESE AND SILICON UPON BORON-TREATED MANGANESE-SILICON AND SILICON-CHROME-MOLYBDENUM STEELS WITH REDUCED CARBON. Rept. 5 of Investigation of High-Strength Constructional Steels. Dec 62, 1000 words.
Order from HB $3.80 HB-5799

Trans. of Tetsu to Hagane (Japan) 1962, v. 48, no. 11, p. 1456-1458.

DESCRIPTORS: *Molybdenum, *Manganese, *Silicon, *Boron, Chromium, *Steel, Hardening, Carbon, Mechanical properties.

Bungardt, Karl.
DEVELOPMENT AND PRESENT STATUS OF CORROSION-RESISTANT STAINLESS ROLLED STEELS (Entwicklung und Stand der Nichtrostenden Walz- und Schmiedestahle). [1962] [39]p. (foreign text included) 75 refs.
Order from SLA $3.60 62-18155

Trans. of Stahl und Eisen (West Germany) 1950, v. 70, no. 14, p. 582-596 (Verein Deutscher Eisenhüttenleute (West Germany). Berichte-712).

DESCRIPTORS: *Stainless steel, Rolling mills, *Corrosion inhibition, Iron alloys, Chromium alloys, Steel, Corrosion-resistant alloys, Corrosion, Corrosion research.

Pogodin-Alekseev, G. I. and Artamonov, B. A.
DEFORMATION DIAGRAM OF STEEL HARDENED FROM TEMPERATURE A_{c1}-A_{c3}. 31 Oct 62 [10]p. 4 refs. FTD-TT-62-1299.
Order from OTS or SLA $1.10 63-13925

Unedited rough draft trans. of #Metallovedenie i Termicheskaya Obrabotka Metallov (USSR) 1961, no. 3, p. 47-51.

DESCRIPTORS: *Steel, Hardening, Crystallization, Mechanical properties, Stresses, Plasticity, Deformation, Loading (Mechanics), Statics, Dynamics, Temperature.

A study was made of the dynamic and static strength of steel after hardening from the most characteristic temperatures of the recrystallization interval. (Author)

Taganov, K. I.
CERTAIN SPECTROSCOPIC INVESTIGATIONS OF THE POLARITY EFFECT OF THE ELECTRICAL EROSION OF METALS. [1959] 3p. 2 refs. MDF T-143.
Order from OTS $0.50 62-11224

Trans. of #A[kademiya] N[auk] SSSR. Izv[estiya]. Ser[iya] Fiz[icheskaya] 1959, v. 23, no. 9, p. 1097-1099.

DESCRIPTORS: *Spectrographic analysis, *Polarization, *Electroerosive machining, *Metals, *Erosion, *Corrosion.

The investigations were by the false electrode method of K. I. Taganov (Akad. Nauk SSSR Izvest. Ser. Fiz. 14: 634, 1950). The polarity effect was estimated qualitatively by means of the quantity I_-/I_+ where I_- is the spectral line intensity in the spectrum of the products transferred from the cathode and I_+ is the intensity of the same line during combustion of the products transported from the anode. The transport was made by copper false electrodes from identical samples. The transport of zinc, iron and molybdenum (metals which differ substantially in their electrical erosion immunity) was investigated in a low-voltage discharge. An increase in the interelectrode spacing (for a 260-v voltage and a discharge circuit capacity of 1000 uf) leads to a decrease in the transport, especially from the anode, in all cases. However, the transport from the cathode remained practically invariant for zinc within the same range of variation of the interelectrode spacing (from 0.3 to 1.5 mm). The transport for all the metals increased in the localized discharge, due to a concentrated liberation of discharge energy on a limited section of the metal surface. Processes occurring in the contact zone of two heterogeneous metals play a substantial part in contact-electric spark erosion of metals. By estimates of the magnitude of the I_-/I_+ ratio (Bi 3067.7 Å line), it was established that the transport from the anode than transport from the cathode. This suggests that the principal heat liberation occurs at the anode.

Timerbulatov, M. G. and Savukov, V. P.
INCREASING THE EROSION STRENGTH OF STEEL FOR STEAM-TURBINE BLADES BY SPARK-HARDENING. [Aug 61] [12]p. 9 refs. BISI 2316; NLL M. 3539.
Order from OTS or SLA $1.60 62-24645

Trans. of Energomash[inostroenie] (USSR) 1961, v. 7, no. 4, p. 32-34 and 40.
Another trans. is available from BISI £3 10s as BISI-2316, Aug 61.

DESCRIPTORS: *Steam turbine blades, *Steel, Hardening, Erosion, Mechanical properties.

Tests using a magnetostriction vibrator showed that the resistance of 1 Kh 13 steel to cavitational erosion on hardening with ferrochromium and T15 K6 electrodes increases by 4.4 to 8.6 times. This is caused by the formation of an alloyed surface layer of fine structure, containing dispersed inclusions of hardening phases. Experience of spark-hardening the moving blades of low-pressure stages and testing under operating conditions of a 100 MW turbine showed that the method offers an effective protection against erosion. It can be employed for objects operating under conditions in which they are subject to the action of cavitational erosion. (Author)

Tushinskaya, K. I. and Tushinskii, L. I.
DEPENDENCE OF MECHANICAL PROPERTIES OF EUTECTOID STEEL UPON THE STRUCTURAL STATE OF PERLITE. 7 Nov 62 [7]p. 7 refs. FTD-TT-62-1348.
Order from OTS or SLA $1.10 63-13913

Unedited rough draft trans. of Izvestiya V[ysshikh] U[chebnykh] Z[avedenii]. Chernaya Metallurgiya (USSR) 1961, no. 12, p. 130-134.

DESCRIPTORS: *Steel, *Eutectics, Mechanical properties, *Pearlite, *Austenite, Grains (Metallurgy), Microstructure.

NUCLEAR PHYSICS AND NUCLEAR CHEMISTRY

THORIUM CARBIDE STABLE IN AIR AND METHOD FOR PRODUCING IT. [1962] 4p.
Order from OTS or SLA $1.10 62-14891

Trans. of Belgian patent 597827, by Deutsche Gold- und Silber- Scheideanstalt vormals Roessler (West Germany) 5 Dec 60 (patent appl. filed West Germany 28 Dec 59, no. D 32 223 IVa/12 i).

DESCRIPTORS: *Carbides, *Thorium compounds, Air, Stability, Manufacturing methods, Nuclear physics.

Abramov, A. I. and Yutkin, M. G.
USE OF He^3 CHAMBERS IN RECORDING NEUTRON SPECTRA OF FAST REACTORS. [1962] 6p. 10 refs.
Order from OTS or SLA $1.10 AEC-tr-5217

Trans. of mono. Symposium on Pile Neutron Research in Physics, Vienna, 17-21 Oct 60, Proceedings, Vienna, 1962, p. 323-328.

DESCRIPTORS: *Fast reactors, Fast neutrons, *Neutron spectrum, Pulse height analyzers, Ionization chambers.

A method is described for measuring neutron spectra in fast-neutron reactors; this is based on the use of the $He^3(n, p)T^3$ reaction. The results of neutron-spectra measurements in the BR-5 reactor are given and are compared with calculated values. (Author)

Ado, Yu. M., Belovintsev, K. A., and Stolyarov, S. N.
BREMSSTRAHLUNG SPECTRUM OF 260-MEV ELECTRONS. 12 Sep 62 [12]p. 14 refs. FTD-TT-62-1174; AD-287 676.
Order from OTS or SLA $1.60 63-13204

Unedited rough draft trans. of #Atomnaya Energiya (USSR) 1962, v. 12, no. 3, p. 193-197.
A trans. in French is available from OTS or SLA $3.60 in 62-33253 [1962] [100]p.

DESCRIPTORS: *Bremsstrahlung, Gamma-ray spectroscopy, *Electrons, *Photons, Particle accelerator targets, Tungsten, Collimators.

The bremsstrahlung spectrum of 260-Mev electrons has been measured experimentally with a 15-channel pair γ-spectrometer. It has been shown that for thick targets of ~0.10 radiation units and thicker it is necessary to take into account multiple photon radiation by a single electron. (Author)

Alfimenkov, V. P., Ostanevich, Yu. M. and others.
ENERGY SPECTRUM OF RESONANCE ABSORPTION OF γ -RADIATION OF 92 Kev Zn^{67} IN ZINC OXIDE, tr. by Helen J. Chick. [1962] 17p. 10 refs.
Order from OTS or SLA $1.60 AEC-tr-5115

Rough draft trans. of Joint Inst. for Nuclear Research (USSR) P-845.

DESCRIPTORS: *Mossbauer effect, *Resonance absorption, *Gamma rays, *Zinc, Radioactive isotopes, Absorption spectrum, Zinc compounds, Oxides, Doppler effect, Frequency modulation

Using the methods of Doppler shift and frequency modulation, experiments are described on the observation of the Mössbauer effect on γ-ray 92 KeV transition in Zn^{67}. As a source and absorber zinc oxide has been used. The observed magnitude of the resonance absorption was found to be 2.10^{-3}, the width of the line being somewhat larger than the natural one. At the available accuracy of the measurements a certain structure which is rather difficult to be interpreted is observed in the spectrum. (Author)

Erofeev, B. V. and Protashchik, V. A.
THE EFFECT OF Co^{60} ON THE RATE OF DECOMPOSITION OF COBALT FORMATE (Vliyanie Co^{60} na Skorost Razlozheniya Formiata Kobal'ta). [1962] [6]p.
Order from OTS or SLA $1.60 AEC-tr-5054

Trans. of mono. Symposium on Chemical Effects of Nuclear Transformations, Prague, 24-27 Oct 60. Proceedings, v. 2 [Vienna] 1961, p. 371-376.

DESCRIPTORS: Cobalt, Radioactive isotopes, *Cobalt compounds, *Formates, Decomposition, Pyrolysis, Reaction kinetics, Neutron flux.

For determining the role of the various factors affecting the thermochemical stability of solids when irradiated by neutrons, it is of value to investigate the effect, on the non-irradiated substance, of addition of those types of atomic nuclei which are formed on irradiation. Addition of Co^{60} to cobalt formate considerably reduces the specific rate of decomposition. This effect increases the longer the samples are kept. The effect of Co^{60} on the maximum rate of decomposition is far less marked. An analysis of the rate of decomposition using the topokinetic equation $\alpha = 1 - e^{-kt^n}$ shows that the index n in this equation decreases with increasing content of Co^{60} in the sample, this being explained in terms of the influence of the nuclear transformation Co^{60} on the first stages of formation of the metallic nuclei, which catalyse further decomposition of the formate. (Author)

Khlebnikov, G. I. and Dergunov, E. P.
OBTENTION DE COUCHES ÉPAISSES DE THORIUM, D'URANIUM, DE NEPTUNIUM, DE PLUTONIUM ET D'AMÉRICIUM (Poluchenie Tolstykh Sloev Toriya, Urana, Neptuniya, Plutoniya, Ameritsiya) tr. by Mme. Boutleroff. 25 Mar 62 [13]p. (Russian text included) 7 refs. CEA Trans. no. R 1591 (text in French).
Order from OTS or SLA $1.60 62-33261

Trans. in French of #Atom[naya] Energ[iya] (USSR) 1960, v. 9, no. 5, p. 406-408.

DESCRIPTORS: *Thorium, *Uranium, *Neptunium, *Americium, Deposits, Preparation, Electrochemistry, Chemical precipitation.

Kibartas, V. V. and Yutzis, A. P.
SOLUTION OF THE FOK EQUATIONS FOR THE BERYLLIUM ATOM IN THE TWO-CONFIGURATION APPROXIMATION [Reshenie Uravenii Foka dlya Atoma Berilliya v Dvukhkonfiguratsionnom Priblizhenii] [1961] 11p. 6 refs. MDF K-119.
Order from OTS or SLA $1.60 62-23159

Trans. of Zh[urnal] Eksp[erimental'noi i] Tero[eticheskoi] Fiz[iki] (USSR) 1953, v. 25, no. 3(9) p. 264-270.

DESCRIPTORS: *Beryllium, Configuration, Atoms.

There are reproduced the Fok equations in the two-configuration approximation for the ground configuration of a neutral beryllium atom and the radial wave functions obtained with the aid of a solution of the Fok equations both in the single-configuration and in the two-configuration approximations. The total energy is determined with the aid of these functions, including the correction in the two-configuration approximation. (Author)

Nesmeyanov, A. N., Filatov, E. S. and others.
ISOTOPE EFFECT AND SECONDARY REACTIONS OF BROMINE RECOIL ATOMS ACCOMPANYING THE (n, γ) PROCESS (Izotopnyi Effekt i Vtorichnye Reaktsii Atomov Otdachi Broma, Coprovozhydayushchie (n, γ) Protsess). [1962] [19]p. 23 refs.
Order from OTS or SLA $1.60 AEC-tr-5151

Trans. of mono. Symposium on the Chemical Effects of Nuclear Transformations, Prague, 24-27 Oct 60. Proceedings, v. 2 [Vienna] 1961, p. 259-276.

DESCRIPTORS: *Bromine, *Recoil atoms, Radioactive isotopes, *Chemical reactions, *Nuclear reactions, Elastic scattering, Temperature, Diffusion, Methanes, Hydrogen, Chlorine, Fluorine, Halogens.

The objects of the investigation were to determine the limits of applicability of the theory of elastic collisions in the case of bromine derivatives of methane; to ascertain the mechanism governing the formation of parent compounds; to investigate the formation of substitution products of hydrogen, and of chlorine and fluorine; and to determine the differences in behavior of bromine isotopes in the (n, γ)-activated process. (Author)

Ryzhanov, S. G.
APPLICATION OF THE THOMAS-FERMI METHOD TO INTRA-NUCLEAR OSCILLATIONS [Primenenie Metoda Tomasa-Fermi k Vnutriyadernym Kolebannyam]. [1961] 10p. 9 refs. MDF R-112.
Order from OTS $0.50 62-11635

Trans. of Zh[urnal] Eksp[erimental'noi i] Teo[reticheskoi] Fiziki (USSR) 1954, v. 26, no. 3, p. 264-269.

DESCRIPTORS: Nuclei, *Nuclear properties, Oscillations, Frequency, Statistical analysis, *Fluid mechanics, Differential equations, Dipole moments, Quadripole moments, Gamma rays.

A computation is carried out of the intrinsic nuclear oscillations according to the electro-capillary model and the intrinsic oscillation frequencies are calculated. (Author)

Ter-Martirosyan, K. A.
NUCLEAR REACTIONS [AND] RESONANCE IN NUCLEAR REACTIONS (BRIEF SUMMARY): LECTURES. [1962] [37]p.
Order from OTS or SLA $3.60 AEC-tr-5160

Trans. of mono. Yadernye Reaktsii (Dve Lektsii) Moscow, 1960.

DESCRIPTORS: *Nuclear reactions, *Nuclear resonance, *Elementary particles, Neutrons, Scattering protons, Photons, Models (Simulations).

The purpose of these lectures is to present general ideas concerning the mechanism of resonant and direct nuclear reactions. We shall examine several models that agree well with the physics of the processes that take place. (Author)

Tsitovich, A. P.
RESOLUTION OF SEVERAL QUESTIONS ABOUT THE TIME AND AMPLITUDE ANALYSES OF IMPULSES WITH THE AID OF SPECIAL MEMORY DEVICES. [1961] [14]p. 11 refs.
Order from OTS or SLA $1.60 AEC-tr-4701

Trans. of mono. [Reshenie Nekotorykh Voprosov Vremennogo i Amplitudnogo Analiza Impul'sov s Pomoshch'yu Spetsial'nykh Ustroistv Pamyati] Moscow, 1960 [16p.].

DESCRIPTORS: *Nuclear radiation spectrometers, *Time-interval counters, *Data storage systems, Cathode ray tubes, Pulse analyzers.

Various types of arrangement of memory on magnetic drums and cathode-ray tubes are considered in application to interval analyzers for neutron spectrometers. A method is suggested for increasing the speed of an amplitude analyzer by dynamic arrangement of the memory. A method is given for investigation of the relation between impulses in a memory tube. (Author)

Zubarev, D. N.
EVALUATION OF CONFIGURATION INTEGRALS FOR SYSTEMS OF PARTICLES WITH COULOMB INTERACTION [Vychislenie Konfiguratsionnykh Intergralov dlya Sistemy Chastits s Kulonovskim Vzaimodeistviem]. [1961] 6p. 2 refs. MDF Z-109.
Order from OTS $0.50 62-11395

Trans. of A[kademiya] N[auk] SSSR. Doklady, 1954, v. 95, no. 4, p. 757-760.

DESCRIPTORS: *Particles, Energy, Mathematical analysis, *Integrals.

Nuclear Engineering and Power

ABSTRACTS FROM EAST EUROPEAN SCIENTIFIC AND TECHNICAL JOURNALS NO. 41 (PHYSICS AND MATHEMATICS SERIES). 7 Jan 63 [9]p. JPRS: 17005.
Order from OTS or SLA $1.10 63-13853

Consists of abstracts of articles from Jaderna Energie (Czechoslovakia) 1962, v. 8, no. 11, p. 381-410, 418-419.

DESCRIPTORS: *Abstracts, *Nuclear energy, Literature, *Czechoslovakia, Nuclear power plants, Radioactive fallout, Decontamination, Radioactivity, Cesium compounds, Reactor lattice parameters, Training, Uranium, Ores.

CORROSION PROBLEMS. Quarterly rept. no. 8, 1 Jan-28 Feb 62, [1962] 34p.
Order from OTS or SLA $3.60 EURAEC-284

Trans. of a rept. from Centre Belge d'Étude de la Corrosion, Brussels (Belgium) Mar 62.

DESCRIPTORS: *Corrosion research, Nuclear reactors, Reactor materials, Corrosion, *Electrochemistry, Stainless steel, Steel, Zirconium, Iron.

Electrochemical studies have been continued relating principally to stainless steels, boiler-plate steels, zirconium and iron. (See also 63-13131)

CORROSION PROBLEMS, VOLS. I-II. Quarterly rept. no. 7, 1 Oct-31 Dec 61, on Contracts 006-60-3 RDB, 005-60-3 RDB, 007e60-3 RDB. [1962] 85p.
Order from OTS or SLA $8.10 EURAEC-228

Trans. of a joint rept. from Centre Belge d'Étude de la Corrosion, Brussels; Centre d'Étude de l'Énergie Nucléaire, Brussels (Belgium); and Société d'Études, de Recherches et d'Applications pour l'Industrie, Brussels (Belgium) Jan 62.

DESCRIPTORS: *Corrosion research, Nuclear reactors, Reactor materials, Corrosion, *Electrochemistry, Stainless steel, Steel, Aluminum, Aluminum alloys, Zirconium, Iron.

Electro-chemical studies on stainless steels, boiler steels, aluminium and its alloys, zirconium and iron, were continued.

FABRICATION OF SWAGED UO_2 FUEL ELEMENTS. Quarterly rept. no. 6, 1 Oct-31 Dec 61. [1962] [31]p.
Order from OTS or SLA $3.60 EURAEC-238

Trans. of a rept. from Nuklear-Chemie und -Metallurgie G.m.b.H., Wolfgang bei Hanau am Main (West Germany) n.d.

DESCRIPTORS: *Reactor fuel elements, Fuel elements, *Uranium compounds, *Dioxides, Powder metallurgy, Forging, Reactor fuel cladding, Reactor materials, Tests.

Melted UO_2 powder specially precipitated powder and temperature post-treated powder were used for swaging tests. When melting the UO_2 powder, the burn-out of the tungsten electrodes can be diminished by increasing the hydrogen flow in the melting furnace. V2A tubes, inter alia, with wall thicknesses of 0.4 and 0.3 mm were used as cladding material. Swaging tests were carried out at 600° C, 750° C and 900° C. In the range investigated, the swaging density increased as the temperature rose. In order to determine the change in thickness of the tube walls with increasing cross-section reduction, the wall thickness of several tubes was measured after each stage in the swaging. In this connection, an increase in wall thickness was first of all observed, and then with further cross-section reduction after a maximum point had been reached, the wall thickness decreased rapidly. Type of powder and swaging temperature were the parameters of these investigations. Density, porosity and stoichiometry measurements were carried out on swaged tubes.

FABRICATION OF SWAGED FUEL ELEMENTS. Quarterly rept. no. 7, 1 Jan-31 Mar 62, on Contract 062-61-7 RDD. [1962] 49p.
Order from OTS or SLA $4.60 EURAEC-323

Trans. of a rept. from Nuklear-Chemie und -Metallurgie G.n.b.H., Wolfgang bei Hanau am Main (West Germany) n.d.

DESCRIPTORS: *Reactor fuel elements, Fuel elements, *Uranium compounds, *Dioxides, Powder metallurgy, Forging, Annealing, Tests, Reactor fuel rods.

Experiments were made in order to reduce the burning-off rate of the electrodes in the process for manufacturing UO_2 powder. The influence of several possible factors was systematically investigated. It was found thereby that both the angle between electrodes and the addition of argon to the hydrogen has a considerable bearing on the electrode burn-off. Photographs of the powders with an electron microscope illustrate by the shape of the grain the various degrees to which the compactness of these powders can be increased by

swaging. The jackets consisted of V2A, zircaloy-2, and SAP tubes whose walls were generally 0.3 to 0.5 mm thick. Some of the V2A tubes were provided with V2A plugs, whereas the ends of other tubes were plugged up and flattened. The tubes were tested by the ultrasonic method. Several tubes were cold-swaged and annealed at 750°C between runs. The final densities obtained thereby (ab. 90% of the theoretical density) were however no higher than with tubes which had only been cold-swaged without intermediate annealing and are considerably inferior to those of comparable hot-swaged elements. Several tubes of different wall thickness were swaged. The results concerning the influence of the wall thickness on the UO_2-density obtainable by swaging, seem to indicate that, the change of density is independent of wall thickness. Measurements of density, porosity and thermal conductivity were made; metallographic examinations were also carried out. (See also EURAEC-238)

PRODUCTION OF MIXED UO_2-ThO_2 OXIDE PELLETS BY SINTERING IN AIR. Quarterly rept. no. 2 on Contract EUR/C/1356/60/f. [1962] 25p.
Order from OTS or SLA $2.60 EURAEC-58

Trans. of a rept. from Compagnie Industrielle des Combustibles Atomiques Frittes, Paris (France) n.d.

DESCRIPTORS: Reactor fuel rods, *Uranium compounds, *Thorium compounds, *Oxides, Pellets, Production, *Sintering, Extrusion, Air, Controlled atmospheres, Hydrogen, Tests, Additives.

A study was made of the influence of some additives on the sintering speed of thoria. Vanadium oxide proved to be superior to calcium oxide. Micrographic examination of pellets containing vanadium revealed the presence of a secondary phase which is not observed in the case of calcium oxide. Sintering in air of mixtures produced by mixing ThO_2 and hydrated UO_3 resulted in densities which were higher as the proportion of uranium content was greater, as opposed to what happens in sintering under hydrogen. The compounds obtained by sintering in air contain uranium oxide in non-stoichiometric form. An indirect proof was obtained of this by the re-sintering in air of pellets which had first been sintered in hydrogen. Extrusion of UO_2-ThO_2 mixtures and sintering in hydrogen have made it possible to produce sound rods of high density. Sintering tests in air of rods produced by extrusion of UO_3-ThO_2 mixtures are at present being carried out. The preparation of raw rods presented no difficulty. (See also EURAEC-4)

RESEARCH PROGRAMME ON HEAT TRANSFER IN A BOILING WATER REACTOR. Quarterly rept. no. 1, Dec 60-Mar 61 [on Contract 032-60-11 RDA]. [1962] [43]p. 4 refs.
Order from OTS or SLA $4.60 EURAEC-105

Trans. of a rept. from Technische Hogeschool, Eindhoven (Netherlands) n.d.

DESCRIPTORS: Nuclear reactors, *Boiling water reactors, *Heat transfer, Pressurized water reactors.

A short description is given of the pressurized boiling loop and the two atmospheric glass loops in operation. Progress in the development of new measuring methods and in the improvement of existing ones is indicated. Special attention is given to the radioactive and capacitance method for determining the void fraction in a two-phase flow. Additional experiments have been carried out for determining several correction factors, necessary for further analysis of the measurements.

RESEARCH PROGRAMME ON HEAT TRANSFER IN A BOILING WATER REACTOR. Quarterly rept. no. 2, Apr-June 61 [on Contract 032-60-11 RDA]. [1962] 10p.
Order from OTS or SLA $1.10 EURAEC-158

Trans. of a rept. from Technische Hogeschool, Eindhoven (Netherlands) n.d.

DESCRIPTORS: *Boiling water reactors, *Heat transfer, Pressurized water reactors.

A capacitance gauge for measuring the void fraction in a boiling water circuit has been improved by using an outer electrode consisting of four small plates instead of one of cylindrical form. A pressure gauge for measuring differential pressures up to 25 cm water head with line pressures of 30 atmospheres has been constructed using also the capacitance method. Experiments were carried out with a model of the first core loading of the Halden reactor measuring the void fraction and circulation rate as a function of power and pressure up to 30 atmospheres and a heat flux of 1200 kW/m^2. In several conditions large variations in the pressure signal were present with a frequency of about 0.8 Hz and an amplitude of ±50 cm water head. Under normal conditions the boiling noise frequencies as measured with a fast pressure gauge had an upper limit for this model of about 10 Hz with amplitudes of about 8 cm water head. (Author) (See also EURAEC-105)

TECHNICAL REPORT, PT. A. CAN-1 Quarterly Progress Rept. for the Period 1 May-31 July 60. [1962] [21]p. CISE R-24.
Order from OTS or SLA $2.60 EURAEC-38

Trans. of a rept. from Centro Informazioni Studi Esperienze, Milan (Italy) 31 Aug 60.

DESCRIPTORS: Nuclear reactors, Reactor materials, *Heat transfer, *Corrosion, Erosion, Tests, Reactor lattice parameters, Centrifugal pumps, Fluid flow, Stability.

Work was devoted mainly to run two experimental loops: a heat transfer loop and a flow stability loop. Several minor modifications were performed on these loops, to improve operation. The corrosion and erosion loop began operation only. Its performance is not entirely satisfactory due to instability phenomena.

TECHNICAL REPORT, PT. A. CAN-1 Quarterly Progress Report. for the Period 1 Aug-31 Oct 60. [1962] [12]p. CISE R-28.
Order from OTS or SLA $1.60 EURAEC-39

Trans. of a rept. from Centro Informazioni Studi Esperienze, Milan (Italy) 15 Nov 60.

DESCRIPTORS: Nuclear reactors, Reactor materials, *Heat transfer, *Corrosion, Erosion, Tests, Reactor lattice parameters, Reciprocating pumps, Fluid flow, Stability.

Work has been devoted to the following jobs: heat transfer experiments in annular ducts, collection and elaboration of heat transfer data obtained with the round tubes, refined experiments on flow distribution in the cold argon-water loop, preliminary testing of the instrumentation for the study of flow stability, modification and testing of the corrosion and erosion loop, in which the centrifugal pump has been substituted by a reciprocating pump. The difficulties met in the operation of the corrosion loop were overcome. Slight erosion of a stainless steel sample was observed in a preliminary run, devoted to the determination of the minimum time required for each experiment. (See also 63-13140)

URANIUM OXIDE EXTRUSION. Quarterly rept. no. 3 (2d yr. quarterly rept. 7) Apr-June 61, on [Contract 030-60-9 RDF]. [1962] 27p.
Order from OTS or SLA $2.60 EURAEC-119

Trans. of a rept. from Compagnie Industrielle des Combustibles Atomiques Frittes, Paris (France) n.d.

DESCRIPTORS: Reactor fuel elements, *Reactor fuel rods, *Uranium compounds, *Oxides, *Extrusion, Powder metallurgy, Tests.

Extruded rods obtained, when using an uranium oxide powder of low specific area (2.7 sq. m per g), had a density of 10.40 to 10.45 g per c.c., which is more than 95% of the theoretical density. These cylindrical rods having a ratio of $\frac{l}{\phi}$ 10 (10 to 15 mm diameter and 100 to 150 mm long rods) have been obtained by uranium oxide extrusion with gum tragacanth in the presence of aluminum chloride with isostatic compression. The use of uranium oxide powder of foreign origin extruded under the same conditions yielded but indifferent results, as the density did not exceed 10.2 g per c.c.

WELDING OF VERY THICK STEELS. Quarterly rept. no. 1, 1 Sep-31 Dec 61, on Contract 042-61-9 RDB. [1962] 162p.
Order from OTS or SLA $12.00 EURAEC-273

Trans. of a rept. from Ghent U. (Belgium) and Soudometal Co. Ltd. Brussels (Belgium) n.d.

DESCRIPTORS: Nuclear reactors, Reactor materials, Pressure vessels, *Steel, *Welding, Welded joints, Fracture (Mechanics), Brittleness, Creep, Tests.

A survey was made of problems born of constructional particularities of the main types of reactor vessels being used at present. Preliminary studies were made of string-weave bead anomalies in the filler metal; of brittleness in the base metal, caused by plastic strain at different temperatures; and of brittleness in filler metal, caused by plastic strain at different temperatures.

Adorni, N., Bertoletti, S. and others.
RESULTS OF WET STEAM COOLING EXPERIMENTS: PRESSURE DROP, HEAT TRANSFER AND BURNOUT MEASUREMENTS IN ANGULAR TUBES WITH INTERNAL AND BILATERAL HEATING. [Special rept. no. 5 on [Contract 002-59-11 RDI]. [1962] [64]p. CISE R-31; TID-12 459.
Order from OTS or SLA $4.60 EURAEC-45

Trans. of a rept. from Centro Informazioni Studi Esperienze, Milan (Italy) Jan 61.

DESCRIPTORS: *Reactor coolants, Steam, Water, Mixtures, Pressure, Reduction, *Heat transfer, Reactor cores, Reactor fuel elements.

Data obtained by the Piacenza heat transfer facility concerning the wet steam coolant, the annulus test element, and internal and bilateral heating are presented. (See also EURAEC-44)

Bloch, J., Mustelier, J. P. and others.
EXAMINATION OF SAMPLES FROM URANIUM BAR NRX NO. 683, tr. by R. Moeller and B. Moeller. Project on Metallic Fuels at Elevated Temperatures. July 59 [22]p. 6 refs.
Order from OTS or SLA $2.60 NAA-SR-MEMO-4135

Trans. of [Commissariat à l'Energie Atomique (France) no. 271, 1958.

DESCRIPTORS: *Uranium, *Reactor fuels, *Reactor fuel rods, Reactor fuel elements, Metallography, Temperature, Hardness, Density, Microstructure, Tests.

Bolotin, L. I., Suprunenko, V. O. and others.
CALCULATION AND CONSTRUCTION OF AN ACCELERATING SYSTEM FOR A LINEAR ACCELERATOR WITH INTENSIVE FOCUSING. 6 Nov 62 [8]p. (2 refs. omitted) 1 ref. FTD-TT-62-1329.
Order from OTS or SLA $1.10 63-13704

Unedited rough draft trans. of Ukrayins'kyi Fizychnyi Zhurnal (USSR) 1962, v. 7, no. 2, p. 132-136.

DESCRIPTORS: Particle accelerators, *Linear accelerators, *Strong focusing accelerators, Mathematical analysis, Construction, Electric fields.

A semiempirical method is described for calculating an accelerating system of a linear accelerator. It is shown that, in final analysis, this problem is reduced to studying the distribution of the movable electric field in the gaps along the axis of the system and designations

of coefficients, which characterize the effectiveness of accelerating gaps in case of open symmetrical screen tubes, and to comparing the theoretical calculations with experimental data obtained by electrolytic bath methods. (Author)

PHYSICS

ABSTRACTS FROM EAST EUROPEAN SCIENTIFIC AND TECHNICAL JOURNALS NO. 52 (PHYSICS AND MATHEMATICS SERIES). 15 Jan 63 [7]p. JPRS:17150.
Order from OTS or SLA $1.10 63-15086

Consists of abstracts of articles from the scientific and technical journals of Czechoslovakia.

DESCRIPTORS: *Abstracts, Literature, *Czechoslovakia, *Physics, *Mathematics, Algebras, Games theory, Luminescence, Electromagnetic fields, Pulse generators, Symposia.

BULLETIN OF THE ACADEMY OF SCIENCES OF THE USSR, PHYSICAL SERIES, 1961, VOL. 25, NO. 8, P. 923-1074. Transactions of the Conference on X-Ray Spectroscopy (no. 5) Khar'kov, 30 Jan-4 Feb 61. [1962] 1v.
Order from CTT $20.00, $215.00/year

Trans. of Akademiya Nauk SSSR. Izvestiya. Seriya Fizicheskaya, 1961, v. 25, no. 8, p. 910-[1066].

DESCRIPTORS: Physics, Conferences, *X-ray spectroscopy, Bremsstrahlung, Electron multipliers, Gieger counters, Microanalysis, Ionization, X-ray tubes, Crystals, Reflection, Resolution, Absorption spectrum, Iron, Helium group gases, Tungsten, Calcium, Nickel, Molybdenum, Copper, Platinum, Aluminum. Niobium. Computers, X-ray photography

BULLETIN OF THE ACADEMY OF SCIENCES OF THE USSR, PHYSICAL SERIES, 1961, VOL. 25, NO. 9, p. 1077-1204. Transactions of the Conference on Nuclear Spectroscopy (no. 11) Riga, 25 Jan-31 Feb 61 (continuation). [1962] 1v.
Order from CTT $20.00, $215.00/year.

Trans. of Akademiya Nauk SSSR. Izvestiya. Seriya Fizicheskaya, 1961, v. 25, no. 9, p. 1069-[1188].

DESCRIPTORS: Physics, Conferences, *Nuclear spectroscopy, Electron optics, Nuclear reactions, Radioactive decay, Terbium, Ytterbium, Thulium, Erbium, Tantalum, Europium, Holmium, Manganese, Lithium, Beryllium, Neutrinos, Cesium, Nickel, Phosphorus, Silicon, Fluorine, Neon, Tin, Barium.

BULLETIN OF THE ACADEMY OF SCIENCES OF THE USSR, PHYSICAL SERIES, 1961, VOL. 25, NO. 10, P. 1207-1322. Transactions of the Conference on Nuclear Spectroscopy (no. 11) Riga, 25 Jan-3 Feb 61 (continuation). [1962] 1v.
Order from CTT $20.00, $215.00/year

Trans. of Akademiya Nauk SSSR. Izvestiya. Seriya Fizicheskaya, 1961, v. 25, no. 10, p. 1198-[1308].

DESCRIPTORS: Physics, Conferences, *Nuclear spectroscopy, Nuclei, Radioactive decay, Ytterbium, Thulium, Erbium, Thulium, Holmium, Dysprosium, Electrons, Tantalum, Neutrons, Osmium, Platinum, Hafnium, Lithium, Bremssrahlung, Gamma rays, Iodine, Bismuth, Semiconductors, Radiation counters, Beta ray spectrometers, Ionization chambers, Silicon, Zirconium Cadmium, Nuclear spins, Parity.

BULLETIN OF THE ACADEMY OF SCIENCES OF THE USSR, PHYSICAL SERIES, 1961, VOL. 25, NO. 11, P. 1325-1444. Transactions of the Conference on Ferromagnetism and Antiferromagnetism (no. 1) Leningrad, 5-11 Mar 61 (pt. 1). [1962] 1v.
Order from CTT $20.00, $215.00/year

Trans. of Akademiya Nauk SSSR. Izvestiya. Seriya Fizicheskaya, 1961, v. 25, no. 11, p. 1314-[1430].

DESCRIPTORS: Physics, Conferences, *Ferromagnetism, *Antiferromagnetism, Theory, Ferrites, Lattices, Ferroelectricity, Semiconductors, Nickel compounds, Oxides, Dielectrics, Low temperature research, Resonance, Magnetic fields, Yttrium, Single crystals, Iron, Garnet, Terbium, Neodymium, Lutecium, Magnetic moments, Hall effect, Gadolinium, Holmium, Spinels, Uranium compounds, Hydrides, Deuterated compounds, Hysteresis, Lead compounds, Magnetic susceptibility, Permeability (Magnetic), Zinc, Barium compounds, Microwaves, Magnetostriction.

BULLETIN OF THE ACADEMY OF SCIENCES OF THE USSR, PHYSICAL SERIES, 1961, VOL. 25, NO. 12, P. 1447-1562. Transactions of the Conference on Ferromagnetism and Antiferromagnetism (no. 1) Leningrad, 5-11 Mar 61 (pt. 2). [1962] 1v.
Order from CTT $20.00, $215.00/year

Trans. of Akademiya Nauk SSSR. Izvestiya. Seriya Fizicheskaya, 1961, v. 25, no. 12, p. 1434-[1524].

DESCRIPTORS: Physics, Conferences, *Ferromagnetism, *Antiferromagnetism, Ferrites, Single crystals, Manganese compounds, Iron compounds, Oxides, Steel, Silicon, Ultrasonic radiation, Electron microscopy, Magnesium, Hysteresis, Aluminum alloys, Nickel alloys, Cobalt alloys, Metal powders, Creep, Magnetostriction, Thin films.

Bezmenov, V. Ya. and Borisov, V. S.
TURBULENT AIR JET, HEATED TO 4000°K.
27 Feb 62 [11]p. 6 refs. FTD-TT-62-142.
Order from OTS or SLA $1.60 62-23668

Unedited rough draft trans. of Akademiya Nauk SSSR. Otdelenie Tekhnicheskikh Nauk. Izvestiya: Energetika i Avtomatika. 1961, no. 4, p. 42-45.

DESCRIPTORS: Gas flow, Turbulence, *Jets, Temperature, Electric arcs, Heaters, Heat transfer, *High temperature research.

An investigation was made of a free flooded air jet on an electric-arc heater, which guaranteed main heating to 4000° K. Air was supplied to the electric-arc heating chamber through tangent openings; hydraulic stabilization of the arc was present at this time. After heating to a temperature of 4000°K, it was discharged through a hollow electrode. The electrodes cooled the water. The output of the air was measured, which distributed electrical power on the arc and the output of water through the electrodes and the increase of its temperature. The quantity of heat removed in the electrodes was determined. The heat content of the air and its temperature was found according to the thermal balance. The air temperature and absolute pressure in various streams of the jet were measured. The air temperature in the jet, in streams where the maximum temperature was higher than 1100 and lower than 1600°C, was measured by a cooled platinum-rhodiumplatinic thermocouple of the antenna type; in streams where the maximum temperature was lower than 1100°C, measurement was conducted by a G-shaped noncooling chromel-alumel thermocouple.

Gol'denberg, S. A. and Basevich, V. Ya.
THE INFLUENCE OF REDUCED PRESSURE ON FLAME PROPAGATION AND THE COMBUSTION ZONE IN TURBULENT FLOW [AND] THE EFFECT OF PREVAPORIZATION ON THE COMPLETENESS AND STABILITY OF COMBUSTION OF ATOMIZED FUEL.
7 Nov 62 [48]p. 21 refs. FTD-TT-62-948.
Order from OTS or SLA $4.60 63-13688

Unedited rough draft trans. of mono. Gorenie pri Ponizhennykh Davleniyakh i Nekotorye Voprosy Stabilizatsii Plameni v Odnofaznykh i Dvukhfaznykh Sistemakh (Combustion at Lowered Pressures and Some Problems in the Stabilization of a Flame in Single-Phase and Double-Phase Systems) Moscow, 1960, p. 24-42 and 71-85.

DESCRIPTORS: *Flame propagation, *Combustion, Turbulent flow, Pressure, Jet flames, Fuels, Atomization, *Fuel sprays, Vaporization, Stability, *Low pressure research.

Consideration is given to the experimental laws of flame propagation in laminar and turbulent flows at reduced pressures. It follows from these laws that the determining factor is the density of the medium influencing the turbulence characteristics and the normal flame velocity. Also presented are certain experimental data on the length of the combustion zone in turbulent flow in the case of combustion of previously mixed fuel-air mixtures both at reduced pressures and constant excess-air coefficient, as well as at atmospheric pressure, but with varying excess-air coefficient. These data were analyzed from the point of view of the possible theoretical laws for the length of the combustion zone in a turbulent flame in the case of ignition of the jet from the periphery. (Gol'denberg) The theoretical relationship of the burning velocity of the vapor and liquid phases of a fuel was checked experimentally. The important value of turbulence was shown for the burning velocity of the pre-vaporized portion of a fuel with a noncombustible composition of the vapor. (Basevich)

Kanter, B. Z.
INVESTIGATION OF THE ENERGY SPECTRA OF ELECTRONS ACCELERATED BY THE ELECTRIC FIELD OF A MICROTRON RESONATOR. 21 June 62 [9]p. FTD-TT-62-897. AD-283 867
Order from OTS or SLA $1.10 62-32688

Unedited rough draft trans. of Izvestiya Vysshikh Uchebnikh Zavedenii. Fizika (USSR) 1962, no. 1, p. 84-87.

DESCRIPTORS: Electrons, *Electron beams, Acceleration, Energy, Spectrographic data, Secondary emission, *Cyclotrons, *Resonators, Electric fields, Electron accelerators.

Khitrin, L. N.
PHYSICS OF COMBUSTION AND EXPLOSION, tr. by D. Shochet. 1962, 448p. PL-480 Comm.
Order from OTS $4.50 61-31205

Trans. of mono. Fizika Goreniya i Vzryva, Moscow U., 1957 [143p.].

DESCRIPTORS: *Combustion, *Explosions, Physics, Gases, Vapors, Reaction kinetics, Chain reactions, Catalysis, Photochemical reactions, *Ignition, *Flame propagation, Theory, Velocity, Turbulence, Jet flames, *Detonation, Hydrodynamics, Shock waves, *Internal combustion engines, *Gas burners, Jet engines, Diesel engines, *Fuels, Solids, Liquids, *Coal, Particles, Carbon, *Coke.

Contents:
Combustion of gases and vapors (homogeneous combustion)
A short outline of chemical kinetics
Ignition processes
Flame propagation. Normal propagation and combustion
The process of flame propagation. Detonation
Some combustion problems in internal-combustion engines and gas burners
The combustion of liquid and solid substances (heterogeneous combustion)
The burning of liquid fuels
The burning of solid fuel
The burning velocity of coal
Burning of aggregates of particles (solid layers, "boiling" layers, suspensions in air)
Ignition of carbon (coke)

Korolev, B. I.
METHODS FOR DETECTING INLEAKAGE SPOTS IN VACUUM SYSTEMS. 7 June 62 [35]p. FTD-TT-62-346.
Order from OTS or SLA $3.60 62-32509

Unedited rough draft trans. of mono. Osnovy Vakuumnoi Tekhniki [3d ed.] Moscow, 1957, chap. 7, p. 251-271.

DESCRIPTORS: *Vacuum systems, *Leakage detectors, Tests, Helium, Halogens, Pressure gages, Ionization, Manometers, Mass spectroscopy, Luminescence, Detection.

Norkin, S. B.
CONCERNING ONE CASE OF DEPENDENCE OF DELAY ON FUNCTION BEING SOUGHT. 29 Oct 62 [14]p. 9 refs. FTD-TT-62-1287.
Order from OTS or SLA $1.60 63-13892

Unedited rough draft trans. of Zhurnal Vychislitel'noi Matematiki i Matematicheskoi Fiziki (USSR) 1962, v. 2, no. 2, p. 343-348.

DESCRIPTORS: *Differential equations, *Functions, Integration, Rocket motors, Combustion chambers, Combustion, Oscillators, Circuit breakers, *Delay circuits, Stability, Oscillation.

This paper is devoted to studying the solutions of the differential equation with delayed argument

$$\chi''(t)+A\chi'(t)+B\chi(t)\ C\chi(t-\Delta(t,\chi))=0\ (-\infty<t<+\infty),$$

where A, B, C are constants; the delay $\Delta(t, \chi)\geq 0$ is continuous over t and depends in a certain way on distribution of zeroes of the function being sought.

Peshkov, V. P. and Tkachenko, V. K.
ON THE KINETICS OF THE BREAKDOWN OF SUPERFLUIDITY IN HELIUM. [1961] [18]p. 12 refs.
Order from OTS or SLA $1.60 AEC-tr-4814

Trans. of unidentified Russian language mono, n.p., n.d.

DESCRIPTORS: Capillary tubes, *Helium, *Fluid flow, Heat transfer, Turbulence, Velocity.

A study was conducted of the kinetics of the breakdown of the superfluidity with heat transfer along a helium-filled capillary 1.4 mm in diameter and 8 meters in length. At $T=1.34^{\circ}K$ and velocities of the superfluid exceeding the critical (velocity) from 1.04 to 1.6 times, there are observed turbulent fronts, expanding at a constant rate, moving from the hot end to the cold with velocities from 1 mm/sec to 3.7 mm/sec and from the cold end to the warm with a velocity of from 1 mm/sec to 3.7 mm/sec and from the cold end to the warm with a velocity of from 0.1 mm/sec to 2.5 mm/sec. (Author)

Rimarskii, W. and Friedrich, H.
ELECTROSTATIC CHARGES BY FLOWING GASES. Paper read at [International] Congress [on] Acetylene (no. 12) London [1936]. [1962] 40p. (figs. omitted) 10 refs.
Order from SLA $3.60 62-18330

Trans. of Autogene Metallbearbeitung (Germany) 1936, v. 29, 1 Aug, p. 225-232; 15 Aug, p. 241-246.

DESCRIPTORS: Gases, *Gas flow, *Static electricity, Gas cylinders, Nozzles.

Tetel'baum, I. M. and Bayakovskii, Yu. M.
A METHOD FOR MATHEMATICAL SIMULATION OF SPACE EDDY HYDRODYNAMIC FIELDS. 10 Oct 62 [5]p. FTD-TT-62-647.
Order from OTS or SLA $1.10 63-13203

Unedited rough draft trans. of Soviet patent 137 277 (677140/26) 23 Aug 60.

DESCRIPTORS: *Magnetohydrodynamics, *Space environmental conditions, Models (Simulations), Mathematics, Magnetic fields.

The method of mathematical simulation of space eddy hydrodynamic fields of incompressible fluid by using fluctuating magnetic fields differs in that, with the aim of setting the streamlined boundaries of the simulated field and to eliminate normal components of the magnetic field at boundary of the media, metallic bodies are used which serve as magnetic insulators and are made in the shape of the field boundaries. (Author)

Volgin, M. and Karev, M.
SUPERCONDUCTIVITY WILL KNOCK INTO THE DOORS OF TECHNOLOGY. 21 Sep 62 [16]p. FTD-62-1214; AD-287 704.
Order from OTS or SLA $1.60 63-13185

Unedited rough draft trans. of Znanie-Sila (USSR) 1961 [v. 36] no. 5, p. 23-25.

DESCRIPTORS: *Cryogenics, *Superconductivity, Transmission lines, Computers, Liquified gases, Helium, Meters, Amplifiers, Compasses, *Antifriction bearings.

Acoustics

AERODYNAMIC INDUSTRY, 1960, NO. 18: SELECTED ARTICLES. 15 Nov 62 [71]p. 11 refs. FTD-TT-62-696.
Order from OTS or SLA $7.60 63-13686

Unedited rough draft trans. of Promyshlennaya Aerodinamika (USSR) 1960, no. 18, p. 54-107.

DESCRIPTORS: *Aerodynamics, Industry, *Acoustics, *Microphones, Calibration, Sound, High pressure research, Measurement, Correlation techniques, *Measuring devices (Electrical and Electronic), Circuits, *Noise analyzers, Spectroscopy, *Magnetic tape, *Engine mufflers, Pipes.

Contents:
A system for calibrating microphones at high sound-pressure levels, by N. N. Pisarevskii and T. V. Smyshlyaeva
An electronic correlograph for acoustic measurements, by N. N. Pisarevskii
Using a ring of ferromagnetic tape in spectral analysis of noise, by L. G. Khobets
An experimental study of mufflers in the form of pipes with branches, by R. D. Filippova and E. Ya. Yudin.

Office of Technical Services, Dept. of Commerce, Washington, D. C.
ULTRASONICS (SUPPLEMENT TO CTR-288).
Sep 62, 26p. 524 refs. OTS Selective Bibliography SB-500.
Order from OTS $0.10 OTS SB-500

DESCRIPTORS: *Ultrasonics, *Ultrasonic radiation, Medical equipment, Biology, Non-destructive testing, Cleaning, Welding, Metallurgy, Radiation effects, *Bibliography

Lists 524 reports and translations added to the OTS collection during the period 1957 to September 1962. Material is listed in the following categories: Ultrasonics in Medicine and Biology, Nondestructuve Testing, Ultrasonic Cleaning, Ultrasonic Welding, Ultrasonics in Metallurgy, Ultrasonics and Ultrasonic Radiation General, and AEC Reports on Ultrasonics. Covers research on ultronsonic diagnosis of tumors, frostbite therapy, effects on man; inspection and testing of adhesive bonds, tubing, forgings, foamed-in-place resins; ultrasonic cleaning; ultrasonic cold welding; ultrasonic machining and grinding of super alloys and microminiature equipment; ultrasonic extrusion and casting; fabric dying; fuel foam control and dust precipitation among other subjects. (Author)

Rimskii-Korsakov, A. V.
DEVELOPMENT OF ACOUSTIC INVESTIGATIONS.
7 Nov 62 [5]p. FTD-TT-62-1346.
Order from OTS or SLA 63-13698

Unedited rough draft trans. of A[kademiya] N[auk] SSSR. Vestnik, 1958 [v. 28] no. 11, p. 120-121.

DESCRIPTORS: Conferences, *Acoustics, Sound transmission, Nonlinear systems, Ultrasonics, Measurement.

A report on the Fourth All Union Acoustic Conference, organized by the Commission on Acoustics and the Acoustics Institute of the Academy of Sciences USSR with the participation of the Moscow State University.

Electricity and Magnetism

Belov, K. P.
PHYSICS OF NEW FERROMAGNETIC MATERIALS.
[1961] [9]p. MDF-B-192.
Order from OTS or SLA $1.10 62-23143

Trans. of A[kademiya] N[auk] SSSR. Vestnik, 1961, v. 31, no. 5, p. 33-38.

DESCRIPTORS: *Ferromagnetic materials, *Ferromagnetism, *Antiferromagnetism, Magnetic properties, Magnetic moments, Ferrites, Single crystals, Structural properties.

Attempt is made to characterize briefly the fundamental directions in investigations on the physics of ferro- and antiferromagnetism. (Author)

Eidinger, Adolf and Rieder, Werner.
THE BEHAVIOR OF THE ELECTRIC ARC IN A TRANSVERSE MAGNETIC FIELD (MAGNETIC BLOWING). [1962] 67p. 105 refs.
Order from SLA $6.60 62-18281

Trans. of Archiv fŭr Elektrotechnik (Germany) 1957, v. 43, no. 2, p. 94-114.

DESCRIPTORS: *Electric arcs, *Magnetic fields, *Plasma physics, Switches, Rectifiers, Aeronautics, Cathodes, Hall effect, Statics, Dynamics, Bibliography.

The behavior of the electric arc in a transverse magnetic field is described in the light of previous publications and, above all, on the basis of comprehensive personal investigations. Not only are the physical data to be covered as accurately as possible, but also all essential information on the magnetic blowing which is frequently used in the construction of switch gear is to be given to the electrical engineer, particularly as to the minimum field intensities to assure the functioning of magnetic blowing with various lengths of arc and current strengths, the speed with which an electric arc is moved by a magnetic field, and the effects of magnetic blowing on the characteristics of the arc or breaking length. Also the effect or reverse blowing which occurs in rectifier technology and in aeronautics is discussed in detail. (Author)

Kal'man, V. S.
UNUSUAL FEATURES IN THE DISTRIBUTION OF EARTH LEAKAGE CURRENTS IN MAIN RAILWAY LINES (Osobennosti Raspredeleniya Bluzhdayushchikh Tokov Magistral'noi Zheleznoi Dorogi). Sep 62 [15]p. 3 refs. RTS 2136.
Order from OTS or SLA $1.60 62-32947

Trans. of Elektrichestvo (USSR) 1950, no. 11, p. 33-37.

DESCRIPTORS: Electric currents, *Circuits, Electric potential, *Railroad tracks, Pipes, Electrolysis.

The case of an anomalous distribution of the earth leakage currents in a section of a main railway line, leading

to electrolysis of a pipeline, is discussed. A physical and mathematical interpretation of the phenomenon is given. The equations obtained permit a general mathematical investigation of a defined group of circuits with nonuniform parameters. (Author)

Kulikovskii, A. G. and Lyubimov, G. A.
SIMPLEST PROBLEMS INVOLVING A GAS-IONIZING SHOCK WAVE IN AN ELECTROMAGNETIC FIELD [Prosteishie Zadachi Soderzhashchie Ioniziruyushchuyu Gaz Udarnuyu Volnu v Elektromagnitnom Pole]. 9 Oct 62 [8]p. 3 refs. FTD-TT-62-1219; AD-287 688.
Order from OTS or SLA $1.10 63-13201

Unedited rough draft trans. of Akademiya Nauk SSSR. Doklady, 1959, v. 129, no. 3, p. 525-528.
Another trans. is available in French from OTS or SLA $1.60 as 61-28675, CEA-tr-R1376, 6 June 61 [12]p.

DESCRIPTORS: *Plasma physics, *Magnetohydrodynamics, *Shock waves, Gas ionization, Electromagnetic waves.

It is shown that in shock waves which ionize a gas the density is not greater than in gas-dynamic shock waves and not less than in magneto-gas-dynamic shock waves which have the same parameters of the oncoming flow and the same intensity of the magnetic field up to the sudden change. The remaining values for the shock waves which ionizes a gas also take on intermediate magnitudes between the corresponding values for gas-dynamic and magneto-gas-dynamic shock waves. (Author)

Kuznetsov, V. E.
SYMPOSIUM ON THIN FERROMAGNETIC FILMS. [1961] 4p. MDF RECON-5
Order from OTS $0.50 62-11527

Trans. of A[kademiya] N[auk] SSSR. Sib[irskoe] Otdel[enie]. Izvestiya, 1960, no. 11, p. 144-145.

DESCRIPTORS: Conferences, *Ferromagnetic materials, *Films, Theory.

Montagner, Serge le and Bot, Jean le and others.
PROCESS FOR RAPID CALCULATION OF THE COMPLEX DIELECTRIC CONSTANT BY USE OF CENTIMETRIC WAVES. [1962] 5p. (figs. omitted) 1 ref.
Order from SLA $1.10 62-18325

Trans. of Academie des Sciences [Paris]. Comptes Rendus (France) 1954, v. 239, no. 22, p. 1474-1476 (pub. by Gauthier-Villars et Cie, Paris).
Another trans. is available from OTS or SLA $1.10 in 62-32253, TVA-3391, Jan 55 [7]p.

DESCRIPTORS: *Dielectric properties, Measurement, *Microwaves.

Montagner, Serge le and Bot, Jean le.
RESULTS OF THE MEASUREMENT OF DIELECTRIC CONSTANTS AT 9500 MHz BY A NEW METHOD. [1962] 4p. (fig. omitted) 5 refs.
Order from SLA $1.10 62-18295

Trans. of Academie des Sciences [Paris]. Comptes Rendus (France) 1953, v. 236, p. 593-594 (pub. by Gauthier-Villars et Cie, Paris).

DESCRIPTORS: *Dielectric properties, Measurement, *Microwaves, Polyethylene plastics, Benzenes, Acetones.

Pauthenier, Marcel.
GENERATORS WITH STREAMS OF ELECTRIFIED PARTICLES. Apr 61 [14]p. 8 refs. FRL-TN-41; AD-257 487.
Order from OTS or SLA $1.60 62-25779

Trans. of unidentified French mono., n. p., n. d.

DESCRIPTORS: *Aerosols, Ionic current, Ions, Ionization, *Electrostatic generators, Generators, Gas ionization, Plasma physics, Electrostatics, Charged particles, Powders, Glass, Design, Electrical properties, Pressure.

If dusts to be charged in an electric filter are drawn out of the apparatus before noticeable precipitation occurs, the stream of gas carries off a substantial current of electricity on the charged particles, The laws of the charging of particles (here insulating) in a mono-ionized field permit us to calculate the current carried off. The case of a single "ionizer" or beam of parallel ionizers can be pictured as a honeycomb. Certain devices permit several ionizers to be placed in the same charging circuit. The first monopolar apparatuses described (1, 1.6, 2 mv) function under atmospheric pressure and are large in size. Their current is limited, when particle content is increased, by an inverse discharge at the exit of the ionizer between the ground and the electrified cloud (a very visible discharge with glass columns). We are thus led to increase the internal pressure of the generator, which is the object of this present research. (Author)

Riess, P. T.
THE SCIENCE OF FRICTIONAL ELECTRICITY, CHAP. 4. [1962] 20p.
Order from ATS $39.50 ATS-52P65G

Trans. of mono. Die Lehre von der Reibungselektricitat, Berlin, 1853, p. 203-239.

DESCRIPTORS: Electricity, Friction, Science, *Static electricity.

Timofeeva, G. G.
PINCH-EFFECT AND THE ARC BREAK IN THE CONTRACTION. [1961] 3p. (illus. omitted) 4 refs. MDF T-130.
Order from OTS $0.50 62-11211

Trans. of #Zh[urnal] Tekhn[icheskoi] Fiz[iki] (USSR) 1957, v. 27, no. 11, p. 2669-2671.

DESCRIPTORS: *Magnetic pinch, Mercury, Vapors, Gas discharges, *Electric arcs.

Break currents higher than 80 amp in mercury vapors and higher than 200 amp in hydrogen were not obtained in these experiments, which means that a 2.7 times compression of the current is sufficient to prevent a break.

Urushadze, G. I.
HEAT CONDUCTION OF ANTIFERROMAGNETS AT LOW TEMPERATURES. [1961] 6p. 5 refs. MDF U-104
Order from OTS $0.50 62-11236

Trans. of Ukr[ayins'kyi] Fiz[ychnyi] Zh[urnal] (USSR) 1961, v. 6, no. 1, p. 34-39.

DESCRIPTORS: *Dielectrics, Heat transfer, *Antiferromagnetism, Temperature.

The temperature dependence of the heat conduction coefficient of an antiferromagnetic dielectric is determined for two cases, when $\theta_C \gg 0_D$ and $\theta_D \gg \theta_C$ (θ_C is the Curie and θ_D the Debye temperature). (Author)

Varshavskii, D. S.
ON THE CALCULATION OF THE IONIZING INTENSITY OF THE ELECTRICAL FIELD OF A LAMINATED DIELECTRIC MADE OF IMPREGNATED CAPACITOR PAPER. 15 Oct 62 [11]p. 10 refs. FTD-TT-62-1263.
Order from OTS or SLA $1.60 63-13691

Unedited rough draft trans. of Izvestiya Vysshikh Uchebnykh Zavedenii. Fizika (USSR) 1961, no. 6, p. 22-26.

DESCRIPTORS: *Dielectrics, Laminates, *Paper capacitors, Paper, Impregnants, Ionization, Electric fields, Circuits.

Equivalent circuits for impregnated capacitor paper are examined and, on their basis, an expression is derived for the ionizing intensity of the electrical field in a dielectric. The reasons for the discrepancy between the data obtained on the basis of this expression and the experimental result are analyzed. An expression is derived for the determination of the ionizing intensity in a laminated dielectric made of impregnated capacitor paper which agrees satisfactorily with the experimental data. (Author)

Velikhov, E. P.
INFLUENCE OF A MAGNETIC FIELD ON THE STABILITY OF THE FLOW OF A CONDUCTING FLUID. [Sep 60] 10p. 11 refs. MDF V-145 [AFCRL-TN-60-986] AD-244 926.
Order from OTS $0.50 62-11242

Trans. of mono. Vopr[osy] Magn[ito i] Gidrodin[amiki] i Din[amiki] Plazmy, Riga, 1959, p. 49-58.

DESCRIPTORS: *Magnetic fields, *Stability, *Conductors, Magnetic factors, Conductivity, Electrical effects, *Magnetohydrodynamics.

Vlasov, K. B. and Ishmukhametov, B. Kh.
ROTATION OF THE PLANE OF POLARIZATION OF ELASTIC WAVES IN MAGNETICALLY-POLARIZED MAGNETO-ELASTIC MEDIA [AND] COMMENT, BY L. N. SYRKIN. [1961] 9p. 12 refs. MDF V-156.
Order from OTS $0.50 62-11577

Trans. of mono. Ferrity [Ferrites] [Minsk] 1960, p. 41-49.

DESCRIPTORS: *Ferromagnetic materials, *Elasticity, *Magnetostriction, Polarization, Propagation, Tensor analysis, Rotation.

Volkov, D. I.
ON THE HALL EFFECT IN FERROMAGNETS. [1961] 4p. 7 refs. MDF V-155.
Order from OTS $0.50 62-11250

Trans. of Moscow U. Vestnik. Ser[iya] 3: Fiz[ika] Astr[onomiya] (USSR) 1960 [v. 15] no. 4, p. 18-20.

DESCRIPTORS: *Ferromagnetic materials, Magnetic properties, Temperature, Magnets, *Hall effect.

The temperature dependence of the Hall effect in ferromagnets is analyzed. A relation is established between the Hall constant, independent of temperature, and the magnitude of the paramagnetic susceptibility of the conduction electrons. (Author)

Zhigulev, V. N.
THEORY OF AN ELECTRICAL DISCHARGE IN A MOVING CONDUCTING MEDIUM. [1959] 4p. 3 refs. MDF Z-119.
Order from OTS $0.50 62-11618

Trans. of Akademiya Nauk SSSR. Doklady, 1959, v. 124, no. 6, p. 1226-1228.

DESCRIPTORS: *Electric discharges, Theory, *Temperature, Conductivity, *Magnetohydrodynamics.

The new phenomenon of compressing an electrical discharge in a moving conducting medium, which can be used to obtain high temperatures, is discussed. (Author)

Zhigulev, V. N.
THEORY OF THE MAGNETIC BOUNDARY LAYER. [1959] 5p. 4 refs. MDF Z-118.
Order from OTS $0.50 62-11633

Trans. of Akademiya Nauk SSSR. Doklady, 1959, v. 124, no. 5, p. 1001-1004.

DESCRIPTORS: *Magnetic fields, Theory, *Boundary layer, Plasma physics, Reynolds numbers.

Examples are presented which illustrate the fact that a moving plasma is screened from the external magnetic field and from the electric currents flowing therein, the thickness of the screening layer, called the magnetic boundary layer, has an order of $1/\sqrt{Re_m}$ for motions with large magnetic Reynolds numbers. (Author)

Electronics

Gul'ko, B. N.
EXAMINATION OF PULSE DISCHARGE AT LOW PRESSURE BY PROBING METHOD. 26 Oct 62 [11]p. 3 refs. FTD-TT-62-1282.
Order from OTS or SLA $1.60 63-13894

Unedited rough draft trans. of Izvestiya Vysshikh Uchebnykh Zavedenii. Fizika (USSR) 1960, no. 1, p. 197-202.

DESCRIPTORS: *Plasma physics, *Electric discharges, Electromagnetic pulses, Gases, *Argon, Electron density, Temperature, Pressure, Measuring devices (Electrical and electronic), Low pressure research.

The pulsed discharge in argon atmosphere was studied. Examination of electron temperature and electron concentration versus pressure and strength of current in the discharge made it possible to estimate the nature of processes occurring in such a discharge. (Author)

Osipov, B. D.
ON THE ACCURACY OF MICROWAVE FREQUENCY STANDARDS. [1961] 3p. 1 ref. MDF O-103.
Order from OTS $0.50 62-11630

Trans. of Zh[urnal] Eksp[erimental'noi i] Teor[eticheskoi] Fiz[iki] (USSR) 1953, v. 25, no. 4, p. 509-510. Another trans. is available from ATS as ATS-6G7R, 2p.

DESCRIPTORS: *Microwave spectroscopy, Microwaves, Frequency, Standards, *Discriminators.

Poletaev, I. A.
LIMITS OF STABLE EXISTENCE OF POSITIVE GAS DISCHARGE COLUMN. 28 Nov 62 [14]p. 23 refs. FTD-TT-62-1238.
Order from OTS or SLA $1.60 63-13904

Unedited rough draft trans. of Zhurnal Tekhnicheskoi Fiziki (USSR) 1951, v. 21, no. 9, p. 1021-1028.

DESCRIPTORS: *Gas discharges, *Plasma physics, Ionization, Ionization potential, Stability.

A calculation of the characteristics of a positive gas discharge column, carried out with the application of ionization curve approximation in broadened limits of electron velocities, leads to the presence of a maximum value in reproducing the radius of the column and gas pressure, below which the positive column cannot exist. Limiting the burning of the positive column is due to the fact that the ionizability of plasma electrons upon pressure reduction reaches a limit determinable by the presence of a maximum on the ionization curve. (Author)

Trubnikov, B. A.
MAGNETIC EMISSION OF HIGH TEMPERATURE PLASMA. Thesis submitted to the Institute of Atomic Energy, Moscow Institute of Engineering and Physics, Academy of Sciences SSSR, 1958. June 60, 158p. 23 refs.
Order from OTS $2.75 AEC-tr-4073

Trans. of mono. Magnitnoe Izluchenie Vysokotemperaturnoi Plasmy, Moscow, 1958.

DESCRIPTORS: *Plasma physics, Temperature, Electrons, Thermionic emission, Magnetic fields, Emissivity, Electromagnetic waves, Absorption, Refraction, *Thermonuclear reactions, Feasibility studies, Deuterium, Tritium, Dielectric properties, Tensor analysis, Theses.

The present work examines problems relating to the emission of the electrons of a high-temperature plasma moving in a magnetic field ("magnetic emission"). The principal attention is devoted to the emission and absorption of waves with frequencies exceeding several times the gyromagnetic frequency of the electrons $\omega_h = \frac{eHo}{mc}$ (high harmonics of the spectrum). The results are utilized for assessing the role of magnetic emission in the energy balance of a deuterium or deuterium-tritium plasma within which thermonuclear reactions evolve. It is shown that the losses of energy on magnetic emission impose extremely strict restrictions on the size of the plasma systems within which a thermonuclear reaction based on pure deuterium could be self-sustaining. (Foreward)

Turko, M. N.
ON THE DISTRIBUTION OF IONS IN THE PLASMA OF AN ARC DISCHARGE. 7 Nov 62 [16]p. 9 refs. FTD-TT-62-1225.
Order from OTS or SLA $1.60 63-13901

Unedited rough draft trans. of Akademiya Nauk SSSR. Sibirskoe Otdelenie. Izvestiya, 1961, no. 6, p. 14-22.

DESCRIPTORS: *Plasma physics, *Ions, Ionization, Distribution, Electric arcs, *Electric discharges, Atoms, Electrodes.

It has been experimentally demonstrated that the degree of ionization of an element in the positive column of a low-current unipolar arc depends upon whether the element vaporizes from the anode or the cathode. The proposed explanation of the phenomenon is based on the assumption that in view of the entry of ions from the near-electrode regions, Saha's formula is not strictly adhered to in the column. Mathematical expressions have been obtained in which the effect of the polarity of the vaporization of an element on the degree of ionization of its atoms is taken into account.

Vanyukov, M. P., Ermakov, B. A., and others.
TRACING THE TIME VARIATION OF SPECTRUM LINE PROFILES IN THE RADIATION OF A SPARK DISCHARGE. [1960] 8p. 7 refs. MDF V-149.
Order from OTS $0.50 62-11244

Trans of Leningrad U. Vestnik (USSR) 1959 [v. 14] no. 16, Seriya F[iziki] Kh[imii] no. 3, p. 25-32.

DESCRIPTORS: *Spectrographic analysis, *Gas discharges, Time, Measurement, Photoelectronics, *Line spectra.

Molecular Physics and Spectroscopy

RESEARCH ON SPECTROSCOPY AND LUMINESCENCE PTS. 1-4. June 62, 4vv.
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DESCRIPTORS: *Spectroscopy, *Luminescence, Complex ions, Plasma physics, Gas discharges, Sparks, Excitation, Organic compounds, Alpha particles

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Pt. 3. On excitation spectra in spark discharges, by N. K. Sukhodrev ($12.50)
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Basov, N. G. and Prokhorov, A. M.
USE OF MOLECULAR BEAMS FOR THE RADIO-SPECTROSCOPIC STUDY OF THE ROTATIONAL SPECTRA OF MOLECULES [AND] ON POSSIBLE METHODS OF OBTAINING ACTIVE MOLECULES FOR A MOLECULAR GENERATOR [Primenenie Molekulyarnykh Puchkov dlya Radiospektroskopicheskogo Izucheniya Vrashchatel'nykh Spektrov Molekul [and] O Vozmozhnykh Metodakh Polucheniya Aktivnykh Molekul dlya Molekulyarnogo Generatora]. [1961] 16p. 4 refs. MDF B-105.
Order from OTS or SLA $1.60 62-23061

Trans. of Zh[urnal] Eksp[erimental'noi i] Teor[eticheskoi] Fiz[iki] (USSR) 1954, v. 27, no. 4, p. 431-438 and #1955, v. 28, no. 2, p. 249-250.

DESCRIPTORS: *Molecules, *Generators, Molecular beams, Molecular rotation, Molecular spectroscopy, Quantum mechanics, Quantum statistics.
Methods are developed for using molecular beams to investigate the rotational spectra of molecules. The use of molecular beams permits obtaining narrow spectral lines with a width of ~7 kc. and makes possible the study of the rotational spectrum of substances which normally are found in the solid state. (Author)

Grinev, V. S., Rau, O. T., and Svishchev, G. M.
AUTOMATIC PROCESSING OF ABSORPTION SPECTRA OF MULTICOMPONENT ADDITIVE MIXTURES. [1962] 8p.
Order from ATS $8.65 ATS-45P65R

Trans. of #Opt[ika] i Spektroskopiya (USSR) 1961, v. 11, no. 4, p. 486-491.

DESCRIPTORS: *Absorption spectra, Mixtures, Processing, Automatic, Additives.

Hoppe, W.
MICROANALYSIS BY ABSORPTION SPECTROMETRY IN THE VISIBLE SPECTRAL RANGE AND IN U. V. [1962] 6p. 2 refs.
Order from SLA $1.10 62-18262

Trans. of Experientia (Switzerland) 1955, v. 11 [no. 7] p. 281-282.

DESCRIPTORS: *Physiology, *Microanalysis, *Absorption spectrum, Spectra (Visible and Ultraviolet).

Korovin, Yu. I. and Lipis, L. V.
USE OF DISCHARGE IN A HOLLOW CATHODE FOR DETERMINING IMPURITIES IN ZrO_2 [PT. I] [Ispol'zovanie Razryada v Polom Katode dlya Opredeleniya Primesei v ZrO_2. I]. [1962] [8]p. 9 refs.
Order from OTS or SLA $1.10 AEC-tr-5262

Trans. of Optika i Spektroskopiya (USSR) 1958, v. 5, no. 3, p. 334-337.

DESCRIPTORS: *Dioxides, *Zirconium compounds, Chemical impurities, Determination, Discharge tubes, *Spectrographic analysis.

Osipov, B. D. and Prokhorov, A. M.
AMMONIA (3.3) ABSORPTION LINES AS FREQUENCY METER STANDARD WITH 10^{-6} ACCURACY IN THE 5-20 mc BAND [Liniya Pogloshcheniya Ammyaka (3.3) Kak Etalon dlya Izmereniya Chastot v Dyapazone 5-20 Mgts s Tochnost'yu 10^{-6}]. [1961] 3p. 5 refs. MDF O-104.
Order from OTS $0.50 62-11629

Trans. of A[kademiya] N[auk] SSSR. Doklady, 1955, v. 102, no. 5, p. 933-934.
Other translations are available from CCT $4.00 as CCT-811TM, 2p. and OTS or ETC $1.40 as 61-17491, MTWL-1013, 5p.

DESCRIPTORS: *Radiofrequency spectroscopy, Radiofrequency spectrum analyzers, *Frequency meters, Standards, *Ammonia, *Resonance absorption, Absorption spectrum.
A device is developed to measure frequencies in the 5 - 20 mc band with great accuracy. Computations and experiments show that 10^{-6} accuracy is obtained comparatively simply by using the 3.3 line of the inversion spectrum of ammonia as standard. (Author)

Raykhbaum, Ya. D. and Malykh, V. D.
DEPENDENCE OF THE LINE INTENSITY IN AN ARC DISCHARGE SPECTRUM ON THE CURRENT STRENGTH. [1961] 7p. 8 refs. MDF R-124.
Order from OTS $0.50 62-11578

Trans. of Izvestiya V[ysshikh] U[chebnykh] Z[avedeniy]. Fizika (USSR) 1960, no. 4, p. 147-151.

DESCRIPTORS: *Electric arcs, *Line spectrum, Electric currents, Electrodes, Carbon, Ionization.

One of the factors determining the dependence of the line intensity on the current strength of an arc discharge is the change in the radius of the arc column and the time the atoms stay in the excitation zone. Measurements carried out have shown that the line intensity varies in conformance with the radius of the emitting zone of the arc. The current-conducting channel of the arc has, according to probe measurements, a small radius whose growth occurs more rapidly with the increase in current strength. An increase in the size of the arc column is accompanied by the growth of reabsorption. The self-inversion of resonance lines here decreases since the thickness of the colder layers of the arc diminishes. The interpretation made of the dependence of the line intensity on the current strength permits an explanation of certain effects occurring in spectrum analysis. (Author)

Silin, V. P.
ON THE THEORY OF THE SPECTRUM OF EXCITATIONS OF A MANY-PARTICLE SYSTEM. [1962] 17p. 11 refs.
Free copies available from Boeing Scientific Research Labs. Library as Boeing Trans. R8. When supply is exhausted, order from OTS or SLA $1.60, 63-10298

Trans. of Zhurnal Eksperimental'noi i Teoreticheskoi Fiziki (USSR) 1952, v. 23, no. 6, p. 641-648.

DESCRIPTORS: Particles, *Elementary particles, Spectroscopy, *Particle spectra, Excitation, Theory, *Quantum statistics, *Electrons, Oscillation, Dielectrics.

The spectra of a many-particle system with central interaction are examined both at high temperatures (Boltzmann distribution), and at low temperatures (Fermi distribution). For long waves the excitations correspond to those obtained in the study of the classical kinetic equation with self-consistent interaction. In the region of short waves the quantum character of the excitations becomes substantial. Transverse oscillations in a system of electrons placed in a medium with some dielectric constant were examined. (Author)

Stekhanov, A. I. and Petrova, M. L.
SPECTRA OF COMBINATION SECOND ORDER SCATTERING OF NaBr AND KI CRYSTALS. [1961] 6p. 8 refs. MDF S-121.
Order from OTS $0.50 62-11382

Trans. of Zh[urnal] Eksp[erimental'noi i] Teor[eticheskoi] Fiz[iki] (USSR) 1949, v. 19, no. 12, p. 1108-1112.

DESCRIPTORS: *Crystals, Single crystals, *Sodium compounds, Bromides, *Potassium compounds, Chlorides, *Halides, *Spectra(Visible and Ultraviolet), Scattering, Frequency.

Spectra are obtained of the combination second order scattering of NaBr and KI crystals. The temperature dependence is verified in NaBr crystals in the second order spectrum case. (Author)

Stekhanov, A. I.
SPECTRUM OF COMBINATION SECOND ORDER SCATTERING OF A KCl CRYSTAL. [1961] 5p. 9 refs. MDF S-120.
Order from OTS $0.50 62-11383

Trans. of Zh[urnal] Eksp[erimental'noi i] Teor[eticheskoi] Fiz[iki] (USSR) 1950, v. 20, no. 4, p. 330-333.

DESCRIPTORS: *Crystals, Lattices, *Potassium compounds, Chlorides, *Spectra (Visible and Ultraviolet) Scattering, Frequency.

The combination second order scattering spectrum of a KCl crystal is investigated in this work. An attempt is made at its interpretation by starting from the crystal elastic spectrum calculated on the basis of the Born theory of the crystal lattice. (Author)

Sushchinskii, M. M.
INVESTIGATION OF VIBRATIONAL SPECTRA IN THE REGION OF CH STRETCHING VIBRATIONS, tr. by George N. Kasachkoff and Donald C. Rich. 31 July 62 [11]p. 4 refs. [AMC] (Redstone) Trans-nr-30-62.
Order from OTS or SLA $1.60 62-32649

Trans. of #Akademiya Nauk SSSR. Izvestiya. Seriya Fizicheskaya, 1958, v. 22, no. 9, p. 1063-1067.

DESCRIPTORS: *Raman spectroscopy, *Infrared spectroscopy, Line spectra, *Methanes, Dydrocarbons, Vibration.

Results are cited of experimental and theoretical investigation of the Raman and of infrared spectra in the region of CH stretching vibrations of some hydrocarbons. Examination of the Raman spectra of paraffins in the region of CH stretching vibrations shows that in the given region there is additivity in the sense that the observed spectra are an overlapping of lines that belong to the separate CH_3, CH_2 and CH groups. However, the parameters of these lines do not remain strictly unchanged: the position of the examined group in a molecule and the general molecular structure more or less strongly affect the indicated parameters whereupon a comparatively small change of the frequencies brings about displacements and splitting up of the lines. The most stable parameters are those of the line 2965 cm^{-1}. The intensity of this line (for one CH_3 group) is so characteristic that it can be used for determining the number of CH_3 groups in paraffins of unknown composition. The additivity of Raman spectra has a good analogy in infrared spectra.

Tatevskii, V. M., Tunitskii, L. N., and Novikov, M. M.
OSCILLATION CONSTANTS AND THE DISSOCIATION ENERGY OF THE BeF MOLECULE (Kolebatel'nye Postoyannye i Energiya Dissotsiatsii Molekuly BeF). [1962] 16p. 7 refs.
Order from OTS or SLA $1.60 62-25567

Trans. of Optika i Spektroskopiya (USSR) 1958, v. 5, no. 5, p. 520-529.

DESCRIPTORS: *Beryllium compounds, *Fluorides, *Molecules, Oscillation, Dissociation, Energy, Spectographic analysis, *Gas discharges.

This work represents a study of the oscillation structure of lines $A^2\Pi - X^2\Sigma$ of the BeF molecule. Forty-eight new borders of the Q_1-beam lines and 54 new borders of the R_2 and R_1-beam lines were discovered. The values of the oscillation constants w_o and w_ox_o in the upper and lower states have been determined more precisely, also the second inharmonic coefficient w_oy_o for $X^2\Sigma$ and $A^2\pi$ states was determined. A nonlinear extrapolation was made and a new, most probable value for the dissociation energy of the BeF molecule in the primary state was found to be 8 ± 0.5 eV. (Author)

Terenin, A. N.
SPECTROSCOPY OF GASES AND SOLUTIONS UNDER VERY HIGH PRESSURES, I. [1962] 4p. 9 refs.
Order from OTS or SLA $1.10 62-16783

Abstract trans. of Akademiya Nauk SSSR. Otdelenie Khimicheskikh Nauk. Izvestiya, 1943, no. 5, p. 370-380.

DESCRIPTORS: Spectroscopy, *Infrared spectroscopy, *Gases, *Solutions, High pressure research.

Tsap, M. L.
CONDITIONS FOR THE FORMATION OF BLUE SILICO-MOLYBDENUM HETEROPOLY ACID. [1960] 7p. 6 refs. MDF T-144.
Order from OTS $0.50 62-11225

Trans. of Zav[odskaya] Laborat[oriya] (USSR) 1955, v. 21, no. 3, p. 281-285.

DESCRIPTORS: *Air, *Spectrographic analysis, Fluorides, *Silicon, Silicates, Sodium, Determination, *Molydic acids.

The conditions for the formation of the blue silico-molybdenum heteropoly complex in dilute solutions were studied as a function of the temperature, the hydrogen ion, reducer, molybdate, phosphorus and arsenic concentrations. The calculated magnitude of the molar light-absorption coefficient of the blue silico-molybdenum heteropoly complex was 1.1×10^4 in the 825 to 837 mμ region.

Fabrikant, V. A., Vudynskii, M. M., and Butaeva, F. A.
A METHOD FOR THE AMPLIFICATION OF ELECTRO MAGNETIC RADIATION: SOVIET PATENT NO. 148441. 18 Oct 62, 1p. AID rept. 62-168; [NASA N62-17348]; AD-287 288.
Order from OTS or SLA $1.10 63-13042

Trans. of [Byulleten'] Izobretenii (USSR) 1962, no. 13, p. 20.

DESCRIPTORS: *Lasers, Design, Patents, Electromagnetic waves, Amplifiers.

A discussion of a Soviet patent covering a method of amplifying electromagnetic radiation based on media with a negative coefficient of absorption and distinguished by the application of a multiple passage of the signal through the amplifying medium in order to increase gain.

Kastler, A.
ATOMS INSIDE A PEROT-FABRY INTERFEROMETER [1962] [21]p. 5 refs.
Order from SLA $2.60 62-16224

Trans. of Applied Optics (U. S.) 1962, v. 1, no. 1, p. 17-24.

DESCRIPTORS: *Interferometers, Light, Intensity, Illumination, Atoms, Absorption, Optics, Fluorescence, Lattices, Excitation, Instrumentation, Measurement.

Kuznetsova, L. A. and Sveshnikov, B. Ya.
DEPENDENCE OF THE QUENCHING OF FLUORESCENCE IN SOLUTIONS BY ABSORBING SUBSTANCES ON THE VISCOSITY OF THE SOLVENT [O Zavisimosti Tusheniya Fluorestsentsii Rastvorov Pogloshchayushchimi Veshchestvami ot Vyazkosti Rastvoritelya] tr. by Lydia Venters. Nov 61, 8p. 11 refs.
Order from OTS or SLA $1.10 AEC-tr-4884

Trans. of Optika i Spektroskopiya (USSR) 1958, v. 4, no. 1, p. 55-[59].

DESCRIPTORS: *Fluorescence, *Quenching (Inhibition), Absorption, Solvents, Viscosity.

It is shown that in many cases changes in the yield and duration of the fluorescence of solutions quenched by strange luminescence-absorbing substances, do not depend only on the concentration of the quenching agent, but depend also on the viscosity of the solvent. (Author)

Poshekhonov, B. L.
INVESTIGATION OF THE PATH OF RAYS IN A SPECULAR OPTICAL SYSTEM. 8 Oct 62 [11]p. 2 refs. FTD-TT-62-1218; AD-287 684.
Order from OTS or SLA $1.60 63-13217

Unedited rough draft trans. of Izvestiya Vysshikh Uchebnykh Zavedenii. Priborostroenie (USSR) 1961, v. 4, no. 4, p. 78-84.

DESCRIPTORS: Optical equipment, *Optical phenomena, *Light transmission, Reflection, Mirrors, Geometry.

There is established a criterion of the applicability of geometric optics in slightly inhomogeneous media. It is proved that the conditions $\lambda \ll \gamma$, $\gamma L \ll \gamma^2$ guarantee coincidence of the amplitudes and phases of the geometric and wave solutions. (Author)

Solid State Physics

Raizer, Yu. P.
AIR GLOW DURING A STRONG EXPLOSION AND THE EFFECT OF MINIMUM BRIGHTNESS OF THE FIREBALL. [1962] 29p. 16 refs.
Order from OTS or SLA $2.60 62-16047

Trans. of #Zhur[nal] Eksp[erimental'noi] i Teoret[icheskoi] Fiz[iki] (USSR) 1958, v. 34, no. 2, p. 483-493.

DESCRIPTORS: *Explosions, *Air, *Optics, *Shock waves, Sky brightness, Temperature.

The optical properties of air are considered at temperatures below 6000°. It is shown that absorption and radiation of visible light over the temperature range from 6000 to 2000° can be explained by the formation of nitrogen dioxide in the air at these temperatures. Based on this, an explanation is presented of certain optical phenomena observed during a strong explosion: the glow of air in the shock wave at low temperatures, down to 2000°; the separation of the shock-wave front from the boundary of the fireball when the temperature of the front is close to 2000°; and the peculiar effect of minimum brightness of the fireball. (Author)

SOVIET RECOMPUTATION OF THE LATERAL PHOTOVOLTAIC EFFECT. 8 Nov 62, 3p. AID rept. 62-184; [NASA N63-10279]; AD-289 027.
Order from OTS or SLA $1.10 63-13251

Review of #Radiotekhnika i Elektronika (USSR) 1962, v. 7, no. 7, p. 1196-1205; Electronics (U. S.) 1957, v. 30, no. 7, p. 165-167; Journal of Applied Physics (U. S.) 1960, v. 31, no. 6, p. 1089-1095.

DESCRIPTORS: *Photoelectric effect, Photoelectric cells, Mathematical analysis, Nonlinear systems.

Taubkin and Frimer challenge Wallmark's approximation of the lateral photovoltaic effect and present a more rigorous theoretical explanation which incorporates the lateral fall-off parameter introduced by Lucovsky. Computations are given for both small and large signals which show that the linearity of the response holds only for very low illumination.

Starke, K.
THE LIGHT SHIELDING PROPERTY OF COLORED GLASSES (Die Lichtschutzwirkung Gefärbter Gläser). [1962] [7]p. (foreign text included).
Order from SLA $1.10 62-16157

Trans. of Pharmazeutische Zeitung [Vereinigt mit Apotheker-Zeitung] (West Germany) 1954, v. 90, no. 34, p. 941-942.

DESCRIPTORS: *Glass, *Colors, *Light transmission, *Shielding.

Antonov-Romanovskii, V. V.
CHARACTERISTICS OF GAMMA-LUMINESCENCE OF PHOSPHORS (Osobennosti γ-Lyuminestsentsii Fosforov) tr. by Sergey Shewchuck. July 62 [16]p. (foreign text included) 9 refs.
Order from OTS or SLA $1.60 UCRL Trans-857 (L)

Trans. of Zhurnal Eksperimental'noi i Teoreticheskoi Fiziki (USSR) 1951, v. 21, no. 2, p. 269-274.

DESCRIPTORS: *Phosphors, Zinc compounds, Sulfides, Lead, Copper, *Gamma rays, Excitation, *Luminescence, Attenuation, Infrared radiation.

On the basis of a comparison of the attenuation curve of the phosphor ZnS-Pb, Cu for γ-excitation with the attenuation curves for photoexcitation it appears that the characteristics of γ-luminescence of the phosphors are explained by an irregular distribution of the ionized centers of lumination. A conclusion is made that the ionized centers of lumination and (in equal numbers) the additional electrons originate along the paths of high-energy electrons generated by the γ-rays in the material of the phosphor. Herewith, the regions ("channels") occupied by the electrons considerably exceed the regions occupied by the ionized centers. (Author)

Tatarskii, V. I.
ON THE CRITERIA OF THE APPLICABILITY OF GEOMETRIC OPTICS IN PROBLEMS OF WAVE PROPAGATION IN MEDIA WITH SLIGHT INHOMOGENEITIES OF THE COEFFICIENT OF REFRACTION [O Kriterii Primenimosti Geometricheskoi Optiki v Zadachakh o Rasprostranenii Voln v Srede so Slabymi Neodnorodnostyami Koeffitsienta Prelomleniya]. [1961] 5p. 2 refs. MDF T-101.
Order from OTS or SLA $1.10 62-15902

Trans. of Zh[urnal] Eksp[erimental'noi i] Teor[eticheskoi] Fiz[iki] (USSR) 1953, v. 25, no. 1 (7) p. 84-86.

DESCRIPTORS: *Light, *Wave transmission, *Refraction, Statistical functions.

Bilous, V. M. and Golub, S. I.
EFFECT OF INFRARED LIGHT ON THE LUMINESCENCE OF PURE AND MIXED SILVER HALIDE PHOSPHORI. 25 Oct 62 [6]p. 5 refs. FTD-TT-62-1267.
Order from OTS or SLA $1.10 63-13683

Unedited rough draft trans. of Ukrayins'kyi Fizychnyi Zhurnal (USSR) 1961, v. 6, no. 6, p. 738-741.

DESCRIPTORS: *Silver compounds, *Halides, Chlorides, *Bromides, Crystals, *Luminescence colors, Spectrographic analysis, Infrared radiation.

Boltaks, B. I.
DIFFUSION OF IMPURITIES IN GERMANIUM: SURVEY OF EXPERIMENTAL RESULTS. [1961] 32p. 50 refs. MDF B 127.
Order from OTS or SLA $3.60 62-19844

Trans. of #Zh[urnal] Tekh[nicheskoi] Fiz[iki] (USSR) 1956. v. 26, no. 2, p. 457-474.

DESCRIPTORS: *Germanium, *Impurities, *Diffusion, Solubility, Electrical properties.

The data cited show that a close relation exists between the diffusion and the solubility as well as between diffusion, solubility of the impurities and the electric properties of germanium. A number of essential peculiarities, related to the semiconducting properties of this material, is observed for the diffusion and solubility of impurities in germanium, which are not observed in metals and alloys. Among such peculiarities is the dependence of the diffusion coefficient on the character of ionization of the impurities, the correlation between the diffusion rate and the location of the energy levels of the impurities in the forbidden band of the germanium as well as the specifically semiconducting character of the solubility of certain impurities in germanium. (Author)

Brach, B. Ya., Zhdanova, V. V., and Lev, E. Ya.
THERMOELECTRIC PROPERTIES OF THE HgSe-HgTe SYSTEM. [1962] [7]p. 17 refs. [USASIA] Trans. Log. no. 1159.
Order from OTS or SLA $1.10 62-32621

Trans. from #Fizika Tverdogo Tela (USSR) 1961, v. 3, no. 3.

DESCRIPTORS: Semiconductors, *Mercury compounds, *Selenides, *Tellurides, Preparation, *Thermoelectricity, Measurement.

Results are presented of a study of the thermoelectric properties of the HgSe-HgTe system at room temperature. It is shown that the thermal emf changes linearly with respect to composition, the electro-conductivity has a maximum at 50% of HgSe-50% HgTe (1,900 ohms^{-1}. cm^{-1}), the mobility decreases sharply at the edges of the system, while in a interval from 70% HgSe-30% HgTe to 30% HgSe-70% HgTe it is practically invariable and has a value of 16,000 cm^2/v·sec. HgSe compounds with a mobility of 20,000 cm^2/v · sec and HgTe with a mobility of 22,900 cm^2/v · sec have been obtained. (Author)

Il'yushin, A. A. and Ogibalov, P. M.
ON THE STRENGTH OF THICK-WALLED CYLINDRICAL AND HOLLOW SPHERICAL SHELLS EXPOSED TO IRRADIATION. 25 Oct 62 [18]p. 14 refs. FTD-TT-62-719.
Order from OTS or SLA $1.60 63-13888

Unedited rough draft trans. of Inzhenernyi Sbornik (USSR) 1960, v. 28, p. 134-144.

DESCRIPTORS: *Steel, Cylindrical bodies, Spheres, Tensile properties, Elasticity, Plasticity, *Radiation effects, Deformation, *Neutron flux.

Kaischew, R.
CONTRIBUTION TO THE THEORY OF THE SPEED OF CRYSTALLIZATION (Zur Theorie der Kristallisationsgeschwindigkeit). [1962] [17]p. (foreign text included) 9 refs.
Order from SLA $1.60 62-18118

Trans. of Acta Physica (Hungary) 1957, v. 8, no. 1/2, p. 75-81.

DESCRIPTORS: *Crystallization, Velocity, Dynamics, Theory, Chemical bonds, Nucleation.

Using our own bases of calculation and the ones introduced by Stranski, also applying a simplified calculation scheme according to Becker and Döring, the linear rate of the growth of crystals is determined for flawless crystals. At a small supersaturation already the formation of each two dimensional nucleus leads to the addition of a new layer of atoms upon the crystal surface. (Author)

Lapitskii, A. V. and Simanov, Yu. P.
LITHIUM METANIOBATE AND METATANTALATE. 6 July 62 [14]p. 5 refs.
Order from OTS or SLA $1.10 62-18212

Trans. of Zhur[nal] Fiz[icheskoi] Khim[ii] (USSR) 1955, v. 29 [no. 7] p. 1201-1203.

DESCRIPTORS: *Lithium compounds, *Niobates, *Tantalium compounds, Oxides, Crystal structure, Lattices, X-ray diffraction analysis.

The lattice parameters of the hexagonal (rhombohedral) lithium metaniobate and metatantalate have been determined by an x-ray powder method. (Author)

Pogodaev, K. N. and Vilutis, E. S.
TEMPERATURE DEPENDENCE OF THE X-RAY LUMINESCENCE AND DARK CONDUCTIVITY OF DIAMONDS OF THE YAKUTSK REGION. [1962] [5]p. 7 refs. [USASIA] Trans. Log no. 1162.
Order from OTS or SLA $1.10 62-32619

Trans. of #Akademiya Nauk SSSR. Izvestiya. Seriya Fizicheskaya, 1961, v. 25, no. 3 [p. 373-374].

DESCRIPTORS: *Diamonds, Crystals, Electrical conductance, X-rays, Luminescence, Spectroscopy.

Samsonov, G. V.
NEW HIGH-TEMPERATURE SEMICONDUCTORS AND THEIR USE [Novye Vysokotempe'raturnye Poluprovodniki i Ikh Primenenie]. [1961] 16p. 33 refs. MDF S-179.
Order from OTS $0.50 62-11473

Trans. of Zh[urnal] Vses[oyuznoe] Khim[icheskoe] Ob[shchestvo]. Zh[urnal] (USSR) 1960, v. 5, no. 5, p. 515-521.
Other translations are available from OTS or SLA $1.60 as 61-23090, RTS-1824, June 61 [20]p. and from OTS or SLA $14.50 in 61-23009, JPRS-9293, 26 May 61 [219]p.

DESCRIPTORS: *Semiconductors, *High temperature research, *Refractory materials, Temperature, Heat resistant alloys, Thermocouples.

Tolstoi, N. A.
NEW VIEWPOINTS ON THE PHOTO CONDUCTIVITY AND THE PHOSPHORESCENCE MECHANISMS. [1961] 12p. 14 refs. MDF T-131.
Order from OTS or SLA $1.60 62-15892

Trans. of Radiotekh[nika] i Elektr[onika] (USSR) 1956, v. 1, no. 8, p. 1135-1143.

DESCRIPTORS: *Photoconductivity, *Phosphorescence, Light, Excitation, Reaction kinetics.

A detailed analysis of the kinetics of phosphorescence and of photo conductivity leads to the conclusion that light is not only the primary exciter of these phenomena in the general case but is also one of the parameters of the recombination mechanism. The phenomena of superlinear photo conduction and superlinear phosphorescence which exist simultaneously in CdS(Cu) and CdS(Cu, Fe), are considered as a consequence of a two-step excitation mechanism. The possibility of and the conditions for the appearance of conductivity at local levels are discussed. (Author)

Tsinober, L. I. and Chentsova, L. G.
SYNTHETIC QUARTZ WITH AMETHYST COLORING. [1959] 4p. 6 refs. MDF T-141.
Order from OTS $0.50 62-11229

Trans. of #Kristall[ografiya] (USSR) 1959, v. 4, no. 4, p. 633-635.

DESCRIPTORS: *Quartz crystals, Physical properties, Synthesis, *Colors.

Polished platelets of synthetic quartz crystals, grown in K_2CO_3 solutions with a large iron content and cut parallel to the (11$\bar{2}$0) plane, were irradiated with 1.35 to 2.7 x 10^6 Roentgens. The growth pyramids of the positive <R> rhombohedron were colored amethyst. A smoky-gray color with a violet tint occurred in growth pyramids of the negative <r> rhombohedron, but the brown and the green tinted pyramids of the pinacoids did not change color at all. The absorption curves from pyramids of the positive rhombohedron were very similar to those of natural amethyst. Absorption in the ultraviolet region was relatively high, which is explained by the dissipating effect of the inhomogeneities in synthetic quartz. Curves of the negative rhombohedron are considered to be the superposition of two curves, corresponding to the amethyst and smoky-gray coloring. The iron content in the samples grown in this solution was one or two orders of magnitude larger than that in samples grown in a soda solution. The iron content of the brown and the green samples grown on pinacoids (in the potash solution) was especially high: 0.0080 and 0.025 weight percent, respectively. The 0.0040 and 0.0047 wt-% iron content of the amethyst and mixed (amethyst and smoky gray) samples grown in the potash solution can be a confirmation of the assumption of A. Kats and J. M. Stevels (Philips Research Repts. 11: 115-156, 1956) that the coloring is caused by centers similar to the smoky-gray coloring centers, where the Fe^{3+} ion plays the part of the Al^{3+} ion.

Vereshchagin, L. F., Ryabinin, Yu. N. and others.
GROWTH OF METAL SINGLE CRYSTALS UNDER HIGH HYDROSTATIC PRESSURE. [1961] 4p. 20 refs.
Order from OTS $0.50 62-11249

Trans. of A[kademiya] N[auk] SSSR. Doklady, 1960, v. 135, no. 1, p. 45-47.

DESCRIPTORS: Growth, *Single crystals, Metallic crystals, *Hydrostatic pressure.

Vishnevskiy, V. N. and Pidzyraylo, M. S.
ABSOLUTE QUANTUM YIELD OF PHOTO LUMINESCENCE OF SYNTHETIC RUBY AT ROOM TEMPERATURE. [1961] 5p. 17 refs.
Order from OTS $0.50 62-11248

Trans. of Ukr[ayins'ky] Fiz[ychny] Zh[urnal] (USSR) 1960, v. 5, no. 5, p. 629-633.

DESCRIPTORS: *Synthetic gems, *Ruby, *Luminescence, Temperature, Ultraviolet radiation, Quantum statistics.

The quantum yield appears to be on the order of 70% under excitation of luminescence by visible and ultraviolet radiation. (Author)

Voloshinskii, A. N.
ELECTRON SCATTERING BY LATTICE VIBRATIONS. [1960] 10p. 7 refs. MDF V-143.
Order from OTS $0.50 62-11241

Trans. of N[auchnye] D[oklady] V[ysshei] Sh[koly]. Fiz[iko]-mate[maticheskie] Nauk[i] (USSR) 1959, no. 3, p. 132-140.

DESCRIPTORS: Metallic crystals, *Electron transitions, *Electrons, *Scattering, Crystals, Lattices, *Vibration

The probabilities of electron scattering by vibrations of a metal lattice, which are related to the radiation or absorption of a phonon, are found on the basis of approximate equations, obtained earlier, for the electron and phonon Green's functions. The smallness of the interaction function replacing the coupling constant is not used either in obtaining the approximate equations or

in their subsequent solution. In the particular case of neglecting all virtual processes, the results agree with those of Bloch. The formulas for the probabilities of electron transitions, with the virtual processes taken into account in the original equations, are then obtained It appears that the virtual processes taken into account must have substantial value for kinetic phenomena in metals at low temperatures. (Author)

Voloshinskii, A. N.
ON THE DESCRIPTION OF ELECTRON-PHONON INTERACTION BY GREEN'S FUNCTIONS. [1960] 7p. 12 refs. MDF V-142.
Order from OTS $0.50 62-11240

Trans. of N[auchnye] D[oklady] V[ysshei] Sh[koly]. Fiz[iko]-mat[ematicheskie] Nauk[i] (USSR) 1959, no. 3, p. 126-131.

DESCRIPTORS: *Electrons, *Scattering, *Phonons, Crystals, *Analysis, *Green's function.

Variational equations have been obtained for the electron and phonon Green's functions which describe exactly the electron-phonon interaction in a crystal. The equations obtained are analogous to the Schwinger equations in quantum field theory in which the interaction constant is replaced by a certain interaction function. Formulas are presented which relate the amplitude of the probability of electron scattering by a phonon field to the Green's functions. Approximations are made in the exact equations which are not based on the smallness of the interaction function and allowing the Green's function to be found. (Author)

Vorob'ev, A. A. and Melik-Gaikazyan, I. Ya.
ELECTRON AND HOLE CENTERS IN IONIC CRYSTALS AND LATTICE ENERGY. [1960] 2p. 6 refs. MDF V-152.
Order from OTS $0.50 62-11247

Trans. of Izvestiya V[ysshikh] U[chebnykh] Z[avedenii]. Fizika (USSR) 1960, no. 4, p. 239.

DESCRIPTORS: *Alkali metal compounds, Halides, Ions, *Crystal structure, Electron capture, *Lattices, *Energy.

Zagyanskii, I. L., Samsonov, G. V., and Popova, N. V.
ON THE QUESTION OF PRODUCING BORON CARBIDE SINGLE-CRYSTALS. [1961] 2p. 1 ref. MDF Z-134.
Order from OTS $0.50 62-11431

Trans. of A[kademiya] N[auk] SSSR. Doklady, 1950, v. 74, no. 4, p. 723-724.

DESCRIPTORS: *Boron compounds, *Carbides, Synthesis, Crystallization, *Crystal structure, Analysis.

Zavadskii, E. A. and Faidov, I. G.
ELECTRICAL CONDUCTIVITY OF n-GE IN STRONG MAGNETIC FIELDS. [1961] 3p. 7 refs. MDF Z-132.
Order from OTS $0.50 62-11433

Trans. of Fiz[ika] Met[allov] i Metall[ovedenie] (USSR) 1960, v. 10, no. 3, p. 495-496.

DESCRIPTORS: *Semiconductors, *Germanium, *Conductivity, *Magnetic fields, Electrical effects, Measurement, Electrical conductance.

Zhurkin, B. G., Zemskov, V. S. and others.
ON THE NATURE OF THE QUASI-BINARY SECTION IN THE GERMANIUM-INDIUM-ANTIMONY SYSTEM. [1960] 5p. 8 refs. MDF Z-123.
Order from OTS $0.50 62-11400

Trans. of A[kademiya] N[auk] SSSR. O[tdelenie] T[ekhnicheskikh] N[auk]. Izv[estiya]: Metal[lurgiya] i Topl[ivo] 1959, no. 4, p. 156-158.

DESCRIPTORS: *Sequences, *Germanium, *Indium, *Antimony, *Impurities, Solubility, Solid state physics, *Phase studies, Semiconductors, Crystallization.

Zhurkin, B. G., Zemskov, V. S. and others.
SOLUBILITY OF INDIUM AND ANTIMONY IN GERMANIUM AND THEIR INFLUENCE ON CERTAIN ELECTRICAL PROPERTIES OF GERMANIUM. [1960] 4p. MDF Z-126.
Order from OTS $0.50 62-11434

Trans. of A[kademiya] N[auk] SSSR. O[tdelenie] T[ekhnicheskikh] N[auk]. Izvestiya: Metal[lurgiya] i Topl[ivo] 1959, no. 5, p. 86-90.

DESCRIPTORS: *Germanium, *Electrical properties, *Indium, *Solubility, *Antimony, Semiconductors, Impurities.

Zotov, T. D.
CHANGE IN THE ELECTRICAL RESISTIVITY OF A MAGNETITE SINGLE CRYSTAL IN A MAGNETIC FIELD IN THE DOMAIN OF ITS LOW TEMPERATURE TRANSFORMATION. [1960] 2p. 7 refs. MDF Z-122.
Order from OTS $0.50 62-11432

Trans. of #Fiz[ika] Met[allov] i Metall[ovedenie] (USSR) 1959, v. 8, no. 4, p. 639-640.

DESCRIPTORS: *Magnetite, *Single crystals (Metallurgy), *Electrical properties, Magnetic fields, Temperature, *Phase transitions.

Theoretical Physics

Brown, Frances and Bernstein, Rosa.
THE FIELD OF MAGNETOHYDRODYNAMICS: A BIBLIOGRAPHY OF RUSSIAN LITERATURE 1958-62. Apr 62 [152]p. R62SD90; AD-293 273.
Order from OTS $3.00 63-11535

DESCRIPTORS: *Bibliography, *Magnetohydrodynamics, Plasma physics.

This bibliography covers Russian literature in the field of magnetohydrodynamics from 1958 to 1962. A few references, somewhat less recent, were included because of their importance. Some of the main sources searched included (1) International Aerospace Abstracts (2) Monthly Index to Russian Accessions (3) Engineering Index (4) Technical Translations (5) NASA Announcements and (6) Monthly Catalogue of U. S. Government Publications. References are arranged alphabetically by author, and each author's work is listed chronologically by date or original publication. Both the original and translated citations have been included when possible. Abstracts were included when available. (Author

Kiselev, M. I.
THE THEORY OF A MAGNETOGASDYNAMIC GENERATOR. 26 Sep 62 [11]p. 5 refs. FTD-TT-62-1181.
Order from OTS or SLA $1.60 63-13696

Unedited rough draft trans. of Moscow U. Vestnik. [Seriya 3: Fizika, Astronomiya] (USSR) 1962 [v. 17] no. 1, p. 63-68.

DESCRIPTORS: *Magnetohydrodynamics, Generators, Theory, *Thermoelectric generators, *Fluid dynamics, Supersonic flow, Reynolds number.

The effect of profiling the channel of a magnetogasdynamic generator on the efficiency of the conversion of thermal energy into electrical energy and on the dimensions of the generator is investigated. The order of the efficiency in the case of small magnetic Reynolds numbers in the supersonic region is indicated, and a method of estimating the efficiency for $Re \geq 1$ is given. Viscosity and heat conduction are neglected. (Author)

Sarychev, V. M.
ON PLASMA ACCELERATION IN CROSSED ELECTRICAL AND MAGNETIC FIELDS. 1 Mar 62 [17]p. 4 refs. FTD-TT-62-191. AD-290 837
Order from OTS or SLA $1.60 63-13386

Unedited rough draft trans. of Zhurnal Prikladnoi Mekhaniki i Tekhnicheskoi Fiziki (USSR) 1961, no. 6, p. 17-23.

DESCRIPTORS: *Plasma physics, Plasma jets, Acceleration, Electric fields, Magnetic fields, Equations of motion, *Magnetohydrodynamics.

An examination is made of the isothermal acceleration of a homogeneous stream of weakly ionized plasma in channels with limited angles of expansion in external constant crossed electrical and magnetic fields. The range of values of the dimensionless parameters corresponding to effective acceleration is determined. Solutions are made for problems on plasma acceleration in uniformly expanding channels at maximum acceleration and acceleration with constant efficiency. The maximum allowable values of Mach in effective acceleration are found. (Author)

Tkalich, V. S.
INVESTIGATION OF THE SYSTEM OF MAGNETOHYDRODYNAMIC EQUATIONS IN THE TWO-PARAMETER CASE. [1960] 4p. 8 refs. MDF T-145.
Order from OTS $0.50 62-11221

Trans. of A[kademiya] N[auk] SSSR. O[tdelenie] T[ekhnicheskikh] N[auk]. Izv[estiya]: M[ekhanika] i M[ashinostroyenie] 1960, no. 1, p. 182-183.

DESCRIPTORS: *Magnetohydrodynamics, *Equations, Mathematical analysis.

Velibekov, E. R.
ON A NEW FORMULATION OF A STATISTICAL VARIATIONAL PRINCIPLE IN THE SELF-CONSISTENT FIELD APPROXIMATION. [1960] 7p. 7 refs. MDF V-148.
Order from OTS $0.50 62-11243

Trans. of N[auchnye] D[oklady] V[ysshei] Sh[koly]. Fiz[iko]-mate[maticheskie] Nauk[i] (USSR) 1959, no. 2, p. 128-132.

DESCRIPTORS: *Superconductivity, Theory, Quantum mechanics, *Thermodynamics.

Thermodynamics

Genzel, L.
THE PORTION OF HEAT RADIATION IN HEAT CONDUCTION PROCESSES (Der Anteil der Wärmestrahlung bei Wärmeleitungsvorgängen). [1962] [39]p. (foreign text included) 24 refs.
Order from SLA $3.60 62-18111

Trans. of Zeitschrift für Physik (West Germany) 1953, v. 135 [no. 2] p. 177-195.

DESCRIPTORS: *Thermal conductivity, Energy, Thermal radiation, Absorption, Blackbody radiation, *Glass.

For abstract see 62-18270.

Genzel, L.
THE SHARE OF THERMAL RADIATION IN THE THERMAL CONDUCTION PROCESS [Der Anteil der Wärmestrahlung bei Wärmeleitungsvorgängen]. [1962] 28p. (figs. omitted) 24 refs.
Order from SLA $2.60 62-18270

Trans. of Zeitschrift für Physik (West Germany) 1953, v. 135, no. 2, p. 177-195.
Other translations are available from SLA $3.60 as 62-18111 [1962] [39]p. and as [62-00551] UCRL Trans-476(L) 41p.

DESCRIPTORS: *Glass, *Thermal conductivity, Energy, Thermal radiation, Absorption, Blackbody radiation.

The physico-mathematical relations for the flow of energy and the course of the temperature are calculated for those one dimensional thermal conduction processes in which the radiation of the material itself as well as the radiation from the bounding surfaces has significance for the "true thermal conduction." (Author)

Gokhshtein, D. P.
A THERMODYNAMIC ANALYSIS OF THE THERMAL SYSTEM OF A MAGNETOHYDRODYNAMIC GENERATOR. 31 Oct 62 [16]p. 9 refs. FTD-TT-62-1326.
Order from OTS or SLA $1.60 63-13693

Unedited rough draft trans. of Teploenergetika (USSR) 1962 [v. 9] no. 3, p. 51-56.

DESCRIPTORS: *Electric power production, *Magnetohydrodynamics, Generators, *Gas turbines, Thermodynamics, Gas ionization, Enthalpy, Heat transfer.

A comparative analysis is made of the energy losses in an mhd installation of American design, in a vapor-gas installation of OTI-Hughes design, and in an mhd installation with a regenerative heater in which the intermediate coolant is a powder. (Author)

Kessel'man, P. M.
SIMILITUDES THERMODYNAMIQUES DE L'EAU LOURDE ET DE L'EAU ORDINAIRE [O Termodinamicheskom Podobii Prostoi i Tyazheloi Vody] [The Thermodynamic Similarity of Ordinary and Heavy Water] tr. by de Trezvinski. 24 Mar 62 [17]p. (Russian text included) 7 refs. CEA Trans. no. R 1541 (text in French).
Order from OTS or SLA $1.60 62-33730

Trans. in French of Teploenergetika (USSR) 1960 [v. 7] no. 3, p. 83-87.
A trans. in English is available from OTS or SLA $1.10 as 62-24368, RTS-2040, Apr 62 [10]p.

DESCRIPTORS: *Water, *Heavy water, Thermodynamics, Temperature, Pressure, *Steam, Density.

For abstract see Technical Translations 8: 299, 1962.

Kovalenko, L. M.
A STUDY OF THE PROCESS OF CONVECTIVE HEAT TRANSFER IN WINDING SLIT CHANNELS. 30 Aug 62 [11]p. 8 refs. FTD-TT-62-1175; AD-287 717.
Order from OTS or SLA $1.60 63-13216

Unedited rough draft trans. of Teploenergetika (USSR) 1962 [v. 9] no. 2, p. 77-79.

DESCRIPTORS: *Heat transfer, Heat exchangers, Models (Simulations), Fluid flow, Thermal conductivity, Convection.

The results are given of a study of a model of a laminated heat exchanger composed of plates with herringbone corrugations. (Author)

Lavrov, N. V., Korobov, V. V., and Filippova, V. I
THE THERMODYNAMICS OF GASIFICATION AND GAS-SYNTHESIS REACTIONS. 1962, approx. 120p.
Order from MACM $6.50

Trans. of mono. [Termodinamika Reaktsii Fasifikatsii i Sinteza iz Gazov, Moscow, 1960].

DESCRIPTORS: *Thermodynamics, *Gases, Statistical analysis, Chemical equilibrium, Synthesis.

[P]raining, O.
OBTAINING HIGH TEMPERATURES (UP TO 55,000°C.) UNDER LABORATORY CONDITIONS [Poluchenie Vysokikh Temperatur (do 55,000°) v Laboratornykh Usloviyakh]. [1962] 22p. (figs. omitted) 20 refs.
Order from OTS or SLA $2.60 62-18315

Trans. of Uspekhi Fizicheskikh Nauk (USSR) [1955] v. 55, no. 4, p. 595-608 (originally pub. in Österreichische Chemiker-Zeitung (Austria) 1954, v. 55, no. 5/6 [p. 67-72].
Another trans. is available from ATS as RJ-436.

DESCRIPTORS: *High temperature research, Laboratories, *Explosions, Wire, *Sparks, Electric arcs, Gas ionization, Heat, Production, Measurement.

Tolubinskii, V. I., Legkii, V. M., and Pirogov, M. S.
HEAT TRANSFER OF COMPACT CHECKERBOARD BUNDLES SUBJECTED TO A TRANSVERSE FLOW [AND] HEAT TRANSFER TO SODIUM IN THE REGION OF SMALL PECLET NUMBERS. 6 Nov 62 [21]p. 14 refs. FTD-TT-61-106.
Order from OTS or SLA $2.60 63-13882

Unedited rough draft trans. of Teploenergetika (USSR) 1961 [v. 8] no. 3, p. 53-56 and 62-64.

DESCRIPTORS: *Boiler tubes, *Heat transfer, Gas flow, Calorimetry, *Sodium, Liquid metals, Fluid flow.

The results of tests on heat transfer of compact checkerboard bundles with constricted cross sections are given. It is shown that these bundles are characterized by considerably higher heat-transfer coefficients than the bundles ordinarily used. The experi-

mental data are generalized, and calculation formulas are proposed for determining the heat-transfer coefficients in ordinary and constricted checkerboard bundles subjected to transverse gas flows. (Tolubinskiy and Legkiy) The results of an experimental investigation of heat transfer to molten sodium during flow in a circular tube in the range of Pe numbers 18-400 and Re numbers 2400-6400. (Pirogov)

Vukalovich, M. P., Zubarev, V. N. and others.
EXPERIMENTAL DETERMINATION OF THE SPECIFIC VOLUMES OF WATER UP TO 1200 kg/cm^2 PRESSURES. [1959] 6p. 8 refs. MDF V-139.
Order from OTS $0.50 62-11404

Trans. of Teploenergetika (USSR) 1959, v. 6, no. 10, p. 74-77.

DESCRIPTORS: *Water, *Thermodynamics, Water vapor, Pressure, Temperature, Volume.

Experimental data are presented on the specific volumes of water up to pressures of 1200 kg/sq cm and 300° C temperature and these data are compared with the results of other investigations. (Author)

Wave Propagation

Brekhovskikh, L. M. and Ivanov, I. D.
ON ONE SPECIAL FORM OF DAMPING IN WAVE PROPAGATION IN LAMINAR-INHOMOGENEOUS MEDIA [Ob Odnom Osobom Vide Zatukhaniya pri Rasprostranenii Voln v Sloisto-Neodnorynkh Sredakh]. [1961] 12p. 2 refs. MDF B-118.
Order from OTS or SLA $1.60 62-23013

Trans. of [#Akusticheskii Zhurnal (USSR) 1955, v. 1, no. 1, p. 23-30].

DESCRIPTORS: *Wave transmission, Propagation, Damping, Laminar boundary layer, *Sound, Velocity, *Propagation.

Wave propagation is considered in a layer bounded on one side by an inhomogeneous medium in which the wave propagation velocity decreases with distance from the boundary of the layer. It is shown that wave propagation under these conditions is related to supplementary attenuation specified by the wave energy being 'drawn off' by the inhomogeneous medium. A complete theory of the question is given and the magnitude of the damping is determined. (Author)

Simon, J. C.
ACTION OF A PROGRESSIVE DISTURBANCE ON A GUIDED ELECTROMAGNETIC WAVE. 28 July 60 [35]p. 4 refs. USASIA: SC-86a/60; JPRS: R-970-D.
Order from OTS or SLA $3.60 62-25709

Trans. of Annales de Radioélectricité (France) 1959, v. 14, no. 55, p. 3-16.

DESCRIPTORS: *Electromagnetic waves, Propagation, Wave guides, Vibration, Perturbation theory, Interference, Electromagnetic wave reflections, Doppler effect.

Talanov, V. I.
ON SURFACE ELECTROMAGNETIC WAVES IN SYSTEMS WITH NONUNIFORM IMPEDANCE. [Sep. 59] 3p. 3 refs. MDF T-134; [AFCRL-TN-59-768].
Order from OTS $0.50 62-11226

Trans. of Izvestiya V[ysshikh] U[chebnykh] Z[avedenii]. Radiofizika (USSR) 1959, v. 2, no. 1, p. 132-133.

DESCRIPTORS: *Electromagnetic waves, Propagation, *Wave analysis, Impedance.

An analysis is made of two-dimensional waves with the component $H_z + 0$ (r, ϕ , and z are cylindrical coordinates) within the two-sided angle ($\phi = 0$, $\phi = \phi_0$, and $0 < \phi_0 \leq 2\pi$), on the faces of which are prescribed the homogeneous boundary conditions
$E_r = Z^{(1)}(r)H_z|_{\phi=0}$, and $E_r = -Z^{(2)}(r)H_z|_{\phi=\phi_0}$.
The eigenfunctions

$$H_{z_0} \sim \sqrt{\frac{2Q(r)}{q}}\ \sqrt{1+Q^2(r)}\exp\left[\pm i\int k\sqrt{1+Q^2(r)}\,dr - q\phi\right.$$

$+C]$ are obtained, which describe surface waves with slowly varying amplitude and phase rate. Here C is a constant and $Q(r) = q/kr$.

Talyzin, N. V.
PLANE WAVE INCIDENCE ON A SELECTIVE REFLECTING SURFACE. Aug 61, 13p. 5 refs. MDF T-155 [AFCRL-707] AD-262 527.
Order from OTS $0.50 62-11210

Trans. of #Elektrosvyaz' (USSR) 1961, v. 15, no. 3, p. 8-17.

DESCRIPTORS: *Electromagnetic waves, *Electromagnetic wave reflections, Surfaces, Reflection, Surface properties, Impedance, Energy, Reflectors, Wave transmission, Metals, Bessel functions, Fourier analysis, Differential equations, Functions, *Solid state physics.

Normal incidence is considered of a plane wave on a selective reflecting surface which is in the form of a system of separate resonating elements, dipoles. The secondary field of the selective surface, the current excited in the dipoles by the incident field and the reflection and transmission coefficients are determined. Graphs are given which permit the computation of the reflection and transmission coefficients of a selective reflecting surface in a wide wave band. Experimental results are presented for the transmission coefficients. (Author)

Tatarskii, V. I.
ON THE THEORY OF SOUND WAVE PROPAGATION IN A TURBULENT STREAM [K Teorii Rasprostraneniya Zvukovykh Voln v Turbulentnom Potoke]. [1961] 15p. 6 refs. MDF T-102.
Order from OTS or SLA $1.60 62-15901

Trans. of Zh[urnal] Eksp[erimental'noi i] Teor[eticheskoi] Fiz[iki] (USSR) 1953, v. 25, no. 1(7) p. 74-84.
Another trans. is available from SLA as RT-2974.

DESCRIPTORS: *Sound, *Wave transmission, *Propagation, *Turbulence, Statistical functions.

The problem is considered of the dispersion of sound by isotropic turbulence in an incompressible fluid. The general form of the dispersion index is investigated and a specific expression is established for it by using the correlation coefficient $\exp(-r^2/2)$. The question of the fluctuation of the amplitudes and phases of sound at great distances from the source is investigated on the basis of dispersion theory. (Author)

Troitskii, V. N.
ULTRA-SHORTWAVE PROPAGATION OVER LONG DISTANCES BEYOND THE LIMITS OF THE HORIZON [Rasprostranenie Ul'trakorotkikh Voln na Bol'shikh Rasstoiniyakh za Predelami Gorizonta]. [1961] [25]p. 31 refs. MDF T-117.
Order from OTS or SLA $2.60 62-15896

Trans. of Radiotekhnika (USSR) 1956, v. 11, no. 5, [p. 3-20].

DESCRIPTORS: *Electromagnetic waves, Propagation, Troposphere, Turbulence, Attenuation.

The question is analyzed, of remote tropospheric ultra-short-wave propagation under the assumption that this phenomenon is caused by ϵ inhomogeneities of both turbulent and laminar character. The average value of the field intensity of the tropospheric wave is determined. The question of fading and distortion in tropospheric ultra-shortwave propagation is considered briefly. A comparison is given of the experimental and theoretical results. Considered in the appendix is the validity of the two-thirds law for tropospheric inhomogeneities and a summary is given of the experimental data on ϵ inhomogeneities, obtained by various authors. (Author)

RESEARCH METHODS, TECHNIQUES AND EQUIPMENT

ABSTRACTS FROM EAST EUROPEAN SCIENTIFIC AND TECHNICAL JOURNALS NO. 43 (GENERAL SERIES). 9 Jan 63 [17]p. JPRS: 17072.
Order from OTS or SLA $1.60 63-13826

Consists of abstracts of articles from scientific and technical journals of Rumania.

DESCRIPTORS: *Abstracts, Literature, *Rumania, *Scientific research, Mathematics, Induction systems, Electric motors, Brakes, Electric potential, Paleoecology, Geology, Rolling mills, Astronautics, Symposia, Plastics, Ships, Bridges, Diseases, Agriculture, Nervous system, Helium group gases, Nerve cells, Sociology, Generators.

THE ACTIVITIES OF THE HUNGARIAN ACADEMY OF SCIENCES. 14 Jan [63] [10]p. JPRS: 17131.
Order from OTS or SLA $1.10 63-15085

Trans. of Magyar Tudomany (Hungary) 1962, v. 7[69] no. 8, p. 515-518.

DESCRIPTORS: *Scientific research, *Research program administration, Scientific organizations, *Hungary

COMMUNIST CHINA'S SCIENCE AND TECHNOLOGY TRANSLATIONS NO. 15. 19 Dec 62 [21]p. JPRS: 16761.
Order from OTS or SLA $1.60 63-13488

Trans. of T'u Jang Hsüeh Pao (Chinese People's Republic) 1962 [v. 10] no. 1, p. 62 and 65, table of contents; no. 2, p. 62, 65, table of contents.

DESCRIPTORS: Science, *Agriculture, *Soils, Fertility, *Fertilizers, *Wheat, Tobacco, Plants, Scientific research, Conferences, *China.

Contents:
The Pedology Association of Anhui holds "agriculture soil" and "soil suitability" discussions
The Pedology Association of Kiangsu Province holds technical conference.

FUTURE TRENDS IN SOVIET SCIENCE AND TECHNOLOGY. Rept. 2 on AID Work Assignment no. 26. 24 Oct 62 [91]p. AID rept. 62-178; AD-288 051.
Order from OTS or SLA $8.60 63-13707

DESCRIPTORS: Scientific research, *Astrophysics, Cosmic rays, Atmosphere, Electron optics, Planetary atmospheres, Venus, Moon, *Biology, Space biology, Microbiology, Proteins, Cells (Biology), Cancer, Photosynthesis, *Cybernetics, Bionics, *Earth, Climatology, Geology, Terrestrial magnetism, Seismic waves, Glaciers, *Electronics, Space communication systems, Radio, *Metallurgy, Ores, Superconductivity, *Materials, Polymers, Fuel cells, Petroleum, *Plasma physics, Comets, Thermonuclear reactions, *Scientific organizations, *Research program administration, *Education, *Space flight.

Contents:
General information and related sciences
Astrophysics
Biology
Cybernetics
Earth sciences
Electronics
Metallic materials
Nonmetallic materials
Plasma
Scientific administration, organization and education
Space flight and science.

INTERNATIONAL SYSTEM OF UNITS. 8 Nov 62 [8]p. FTD-TT-62-1354.
Order from OTS or SLA $1.10 63-13692

Unedited rough draft trans. of #Tsvetnye Metally (USSR) 1962 [v. 35] no. 3, p. 88-91.

DESCRIPTORS: *Numerical methods and procedures, Standards, Weight, Time, Electricity, Temperature, Light.

The Committee on Standards Measures and Measuring Instruments at the Soviet of Ministers USSR approved the State Standard, establishing the use of the international system of units for measuring physical values, the basic units of which appear to be: meter, kilogram, second, ampere, Kelvin degree and candle. (Author)

SCIENCE: A POWERFUL WEAPON FOR THE BUILDERS OF COMMUNISM. 16 Apr 62 [22]p. (1 photo omitted). FTD-TT-62-83.
Order from OTS or SLA $2.60 62-25818

Unedited rough draft trans. from Pravda [Moscow] (USSR) 1961, 17 Nov, p. 3, cols. 1-6.

DESCRIPTORS: *Science, Growth, Communism, Research program administration, Scientific research.

SCIENTIFIC AND TECHNICAL INFORMATION ON ISRAEL. 17 Dec 62 [42]p. JPRS: 16700.
Order from OTS or SLA $4.60 63-13541

Trans. of Ma Arkhot-Yam (Israel) 1962, no. 61, p. 3-4 and 71; and from Al-Hamischmar (Israel) 1962, 17 Oct, p. 3 and 4; Letzte Nyes (Israel) 1962, no. 2370, 17 Oct, p. 3; no. 2371, 18 Oct, p. 2; Haaretz (Israel) 1962, 18 Oct, p. 5; Haboker (Israel) 1962, 16 Oct, p. 4.

DESCRIPTORS: Science, Technological intelligence, *Israel, *Water supplies, Industry, Metallurgy, *Hydrology, Scientific personnel, Transportation, Costs, Naval personnel, Training, Submarines, Maintenance.

Contents:
The eight year plan for developing the Israel water economy, by A. Wiener
The development of the Mekorot Company, by Shimon Henigman
Mekorot is twenty-five years old, by J. Duvdevani
The B. Gosinski engineering and production company
When the Jordan goes underground, by Yitshaq Luden
A scientist and inventor in Israel minerals company, by Arye Nesher
Industrial news briefs
Reduction of "Zim" shipping company expenditures, by David Lif
Another naval class graduated in the command and headquarters school
A submarine is overhauled for the first time by the navy, by A. Lish.

SCIENTIFIC AND TECHNICAL TRANSLATIONS ON ISRAEL. 4 Jan 63 [52]p. JPRS: 16968.
Order from OTS or SLA $5.60 63-13846

Trans. of 11 selected articles from 5 Israeli newspapers.

DESCRIPTORS: Translations, *Israel, *Education, *Science, *Industrial research, *Economics, Nuclear engineering, Instructors, Scientific personnel, Nuclear physics, Electric power production, Nuclear power plants, Soils, Microorganisms.

Contents:
Organization of Tekhnion graduates submits to senate its "survey of the curriculum"
Letter regarding Tekhnion directory
Growth of Qiryat Hatekhnion, by Y. Ben-Gera
Nuclear engineering center for Tekhnion
Professors from Turkey, guests of the Tekhnion
How a group of students became experts in nuclear physics, by Amos de Shallit
The Tekhnion Foundation for Research and Development, Ltd., by David Zohar
Present and future of electric power economy, by Sh. Ben-Amitay
Report on worthwhileness of building nuclear power stations submitted to Minister of Development, by Tsvi Tal
Biological method of land cultivation, by Sh. Qurts.

USSR INDUSTRIAL DEVELOPMENT: SOVIET PRECISION EQUIPMENT NO. 50. 26 Dec 62 [38]p. JPRS: 16833.
Order from OTS or SLA $3.60 63-13642

Trans. of Tekhnika Kino i Televideniya (USSR) 1962 [v. 6] no. 9, p. 3-19; no. 10, p. 66 and 68.

DESCRIPTORS: *Industrial production, *Motion picture photography, *Motion picture film, *Motion picture screens, *Motion picture cameras, Optical equipment components, Photographic equipment, Lighting equipment, *Motion picture sound, Motion picture projectors, Underwater photography, Laboratories, *Precision equipment.

Contents:
The status of motion-picture equipment production in the USSR, by I. B. Gordiichuk
A wide-angle attachment for underwater photography with a 16mm motion-picutre camera, by A. S. Lodkin
A new laboratory for motion-picture photographers.

Dragan, Ya. P. and Mikhailovskii, V. M.
ABOUT AN INSTANCE OF AMPLITUDE ERROR DISCRETIZATION. 14 Nov 62 [7]p. 4 refs.
FTD-TT-62-1364.
Order from OTS or SLA $1.10 63-13885

Unedited rough draft trans. of A[kademiya] N[auk] URSR [Kiev]. Dopovidi, 1961, no. 12, p. 1578-1582.

DESCRIPTORS: Signals, Transmission, *Amplitude modulation, Errors, Sampling, *Telemetering data, Commutators, Telemetering transmitters, Information theory.

Glushkov, V.
CYBERNETICS: A POWERFUL FACTOR IN SCIENTIFIC TECHNICAL PROGRESS. 9 Jan 63 [12]p. JPRS: 17077.
Order from OTS or SLA $1.60 63-13829

Trans. from Kommunist Ukrainy (USSR) 1962 [v. 38] no. 7.

DESCRIPTORS: *Cybernetics, Artificial intelligence, Digital computers, Computers, Automation, Control systems, Science, Communism.

Pekelis, V.
PROBLEMS OF CYBERNETICS TODAY. 8 Jan 63 [9]p. JPRS: 17042.
Order from OTS or SLA $1.10 63-13827

Trans. of Tekhnika Moldezhi (USSR) 1962 [v. 30] no. 8, p. 27-29.

DESCRIPTORS: *Cybernetics, Digital computers, Computers, Artificial intelligence, Philosophy, Automation, Control systems.

Communication Theory

COMMUNICATIONS NETWORKS. II. DESIGNATIONS AND ABBREVIATIONS: REVIEW OF SOVIET LITERATURE. Quarterly rept. no. 1, pt. 2, on AID Work Assignment no. 33. 29 June 62 [72]p. AID rept. 62-93.
Order from OTS or SLA $7.60 62-32234

Listing of designations and abbreviations related to communications networks and based on source materials made available at AID.

DESCRIPTORS: *Communication equipment, *Communication systems.

Dobrushin, R., Khurgin, Ya. I., and Tsybakov, B. S.
APPROXIMATE CALCULATION OF THE TRAFFIC CAPACITY OF RADIO CHANNELS HAVING RANDOM PARAMETERS. 26 Sep 62 [10]p. 10 refs. FTD-TT-62-1016.
Order from OTS or SLA $1.10 63-13189

Unedited rough draft trans. of mono. Trudy Vsesoyuznogo Soveshchaniya po Teorii Veroyatnostei i Matematicheskoi Statistike, Erevan, 1960, p. 164-171.

DESCRIPTORS: *Radio communication systems, Communication systems, Radio signals, Transmission, Wave transmission, *Communication theory, Probability, Signal-to-noise ratio, Numerical analysis.

Tkachenko, A. D.
TONAL METHOD OF DETERMINING THE CLARITY OF SPEECH TRANSMITTED BY COMMUNICATION CHANNELS [Tonal'nyi Metod Opredeleniya Razborchivosti Rechi, Peredavaemoi Traktami Svyazi]. [1961] 15p. 6 refs. MDF T-115.
Order from OTS or SLA $1.60 62-15895

Trans. of #Akusticheskii Zhurnal (USSR) 1955, v. 1, no. 2, p. 171-180.

DESCRIPTORS: *Speech transmission, *Intelligibility, *Voice communication systems, Communication equipment, Telephone communication systems.

Abstract: A new method is explained of determining the clarity of speech transmitted by communication channels without conducting articulation experiments. A theoretical foundation and necessary data for the practical use of the method are given. Results are given of a comparison of the clarity determined by the method described and by articulation experiments. (Author)

Trofimov, B. E.
QUANTIZATION NOISES IN CODING SIGNALS OF UNIFORM SPECTRAL DENSITY. 17 Apr 62 [16]p. 4 refs. FTD-TT-62-168.
Order from OTS or SLA $1.60 62-24472

Unedited rough draft trans. of #Elektrosvyaz' (USSR) 1960 [v. 14] no. 7, p. 3-12.

DESCRIPTORS: *Communication theory, Communication systems, Amplitude modulation, *Pulse modulation, *Signals, *Coding, Transmission, *Signal-to-noise ratio, Frequency, Nomographs, Pulse communication systems, Noise (Radio).

An analysis is made of the spectral distribution of the mean power of quantization noises in coding signals which represent a normal steady-state random process. Formulas and nomographs are obtained for calculating the noise power in the frequency band of the signal when coding signals of uniform spectral density. (Author)

1980 PRODUCTION FIGURES. 12 Dec 62 [13]p. JPRS: 16643.
Order from OTS or SLA $1.60 63-13506

Trans. of Znanie-Sila (USSR) 1962 [v. 37] no. 10, p. 13-16.

DESCRIPTORS: Industrial production, Electric power production, Proteins, Synthesis, Nuclear energy, Tractors, Drills, Remote control systems, Digital computers, Metallurgy, Chemistry, Mathematical expectation, *Economics.

ANNOUNCEMENTS AND CONGRATULATORY NOTES CONCERNING THE SPACE FLIGHT OF YU. A. GAGARIN. 17 July 61 [12]p. JPRS: 8597.
Order from OTS or SLA $1.60 61-27199

Trans. from Zdravookhranenie Belorussii (USSR) 1961, v. 7, no. 4, p. 5-10.

DESCRIPTORS: *Astronauts, *Space flight, Manned spacecraft.

Contents:
A great event in the history of mankind! Soviet man in space
To the Communist Party and the peoples of the Soviet Union!
To the peoples and governments of all countries! To al progressive mankind!
Glory to Soviet scientists, designers, engineers, technicians, and workers: the conquerors of space
To the Soviet cosmonaut, the first in the world to complete a space flight: to Major Yurii Alekseevich Gagarin, by Nikita Khrushchev
A decree from the presidium of the supreme Soviet USSR on the awarding of the title of Hero of the Soviet Union to the first Soviet pilot-cosmonaut, Major Yu. A Gagarin, by L. Brezhnev and M. Georgadze
A decree of the presidium of the supreme Soviet USSR on the establishment of the rank "Pilot-Cosmonaut of the USSR", by L. Brezhnev and M. Georgadze
A decree of the presidium of the supreme Soviet USSR of the awarding of the rank "Pilot-Cosmonaut" to pilot Major Yu. A. Gagarin, by L. Brezhnev and M. Georgadze.

SOVIET VIEWS ON COMMON MARKET AND INTERNATIONAL ECONOMIES. 9 Jan 63 [61]p. 41 refs. JPRS: 17064.
Order from OTS or SLA $5.60 63-13825

Trans. of Mirovaya Ekonomika i Mezhdunarodnye Otnosheniya (USSR) 1962, no. 10, p. 3-14 and 49-59.

DESCRIPTORS: *Economics, *Commerce, Europe, Theory, Science, Technological intelligence, Industrial production, Military research, Scientific personnel.

Contents:
Theoretical problems of economics of the common market, by E. Varga
Modern capitalism and scientific and technological progress, by I. Ivanov.

USSR INDUSTRIAL DEVELOPMENT: SOVIET REGIONAL ECONOMY NO. 29. 8 Jan 63 [23]p. (photo omitted). JPRS: 17049.
Order from OTS or SLA $2.60 63-13835

Trans. of Narodnoe Khozyaistvo Kazakhstana (USSR) 1962 [v. 20] no. 9, p. 50-56; Referativnyi Sbornik. Ekonomika Promyshlennosti (USSR) 1962, no. 10, p. 46, 48-49, 107.

DESCRIPTORS: *Industrial production, *Economics, Machine tool industry, Costs, Production, *Industrial plants, Construction, Machines.

Contents:
Specialization with regard for state interests, by A. Masakbaev
New production capacities in Lithuania
Something new in the industrial picture of Armenia
Technical progress and some problems in the development of machine building in Uzbekistan
Basic funds; productive forces and their utilization; capital investments, their economic effectiveness
The distribution of industry.

Nguyen Duy Trinh.
NORTH VIETNAM GOVERNMENT REPORT ON 1960 STATE PLAN BEFORE NATIONAL ASSEMBLY. 29 June 60 [30]p. JPRS: 3465.
Order from OTS or SLA $2.60 60-31310

Trans. from Nhan Dan (Vietnam) 1960, 12-13 Apr, p. 3.

DESCRIPTORS: *Political science, *Economics, *Vietnam, Reports, Communism.

BOOK REVIEWS

The following book reviews can be ordered by number from OTS or SLA for $1.10 each. Each review includes, in addition to the material shown, a detailed statement of the coverage of the book and detailed table of contents.

BR-SOV/5893
Fomin, Nikolay Aleksandrovich
AIRCRAFT DESIGN; WEIGHT DETERMINATION, GROUPING, SYSTEM AND BASIC PARAMETER SELECTION (Proyektirovaniye samoletov; opredeleniye vesa, komponovka, vybor skhemy i osnovnykh parametrov) Moscow, Oborongiz, 1961, 361p. Errata slip inserted. 10,000 copies printed.

BR-SOV/5906
Marchuk, Guriy Ivanovich
DESIGN COMPUTATION METHODS FOR REACTORS (Metody rascheta yadernykh reaktorov) Moscow, Atomizdat, 1961. 668p. Errata slip inserted. 6,000 copies printed.

BR-SOV/5907
Tsander, Fridrikh Arturovich
THE PROBLEM OF FLIGHT WITH THE AID OF REACTION VEHICLES; INTERPLANETARY FLIGHTS. COLLECTION OF ARTICLES) Problema poleta pri pomoshchi reaktivnykh apparatov; mezhplanetnyye polety. Sbornik statey) 2d enl. ed. Moscow, Oborongiz, 1961. 459p. Errata slip inserted. 8550 copies printed.

BR-SOV/5961
Sokolov, Anatoliy Vyacheslavovich
OPTICAL PROPERTIES OF METALS (Opticheskiye svoystva metallov) Moscow, Fizmatgiz, 1961. 464p. 6000 copies printed.

BR-SOV/5978
Grigor'yants, Vladilen Grigor'yevich
INTRODUCTION TO THE COURSE ON RADAR EQUIPMENT (Vvedeniye v kurs radiolokatsionnoy apparatury) [Moscow] Izd-vo Mosk. univ., 1962. 177p. Errata slip inserted. 12,000 copies printed.

BR-SOV/6004
Yur'yev, Boris Nikolayevich
SELECTED WORKS. V. 2: AERODYNAMICS; HISTORY OF AVIATION ENGINEERING (Izbrannyye trudy. t. 2: Aerodinamika; istoriya aviatsionnoy tekhniki) Moscow, Izd-vo AN SSSR, 1961. 272p. Errata slip inserted. 1500 copies printed.

BR-SOV/6008
Chernyy, F. B.
RADIO WAVE PROPAGATION (Rasprostraneniye radiovoln) Moscow, Izd-vo "Sovetskoye radio", 1962. 479p. 20,000 copies printed.

BR-SOV/6010
Shatalov, Aleksandr Stepanovich
STRUCTURAL METHODS IN THE THEORY OF CONTROL AND ELECTRIC AUTOMATION (Strukturnyye metody v teorii upravleniya i elektroavtomatiki) Moscow, Gosenergoizdat, 1962. 407p. Errata slip inserted. 10,000 copies printed.

BR-SOV/6023
Petrov, Aleksey Zinov'yevich
EINSTEIN SPACES (Prostranstva Eynshteyna) Moscow, Fizmatgiz, 1961. 463p. 15,000 copies printed.

BR-SOV/6024
Peshekhonov, Nikolay Fedorovich
INSTRUMENTS FOR MEASURING THE PRESSURE, TEMPERATURE, AND DIRECTION OF FLOW IN COMPRESSORS (Pribory dlya izmereniya davleniya, temperatury i napravleniya potoka v kompressorakh) Moscow, Oborongiz, 1962. 183p. No errata slip. 4775 copies printed.

BR-SOV/6033
Kravchenko, Ivan Varfolomeyevich
METEOROLOGY FOR PILOTS (Letchiku o meteorologii) 3rd ed. rev. and enl. Moscow, Voyenizdat, 1962. 313p. 14,000 copies printed.

BR-SOV/6034
CHEMISTRY AND USE OF ORGANOPHOSPHORUS COMPOUNDS; CONFERENCE TRANSACTIONS (Khimiya i primeneniye fosfororganicheskikh soyedineniy; trudy) Moscow, Izd-vo AN SSSR, 1962. 630p. Errata slip inserted. 2800 copies printed.

BR-SOV/6036
Nagiyev, Murtuza Fatulla
THEORETICAL PRINCIPLES OF RECYCLING PROCESSES IN CHEMISTRY (Teoreticheskiye osnovy retsirkulyatsionnykh protsessov v khimii) Moscow, Izd-vo AN SSSR, 1962. 332p. 3000 copies printed.

BR-SOV/6037
Borzdyka, Anatoliy Matveyevich
METHODS OF HOT MECHANICAL TESTING OF METALS (Metody goryachikh mekhanicheskikh ispytaniy metallov) 2d ed. rev. and enl., Moscow, 5250 copies printed.

BR-SOV/6045
Arifov, Ubay Arifovich
INTERACTION OF ATOMIC PARTICLES WITH METALS SURFACES (Vzaimodeystviye atomnykh chastits s poverkhnost'yu metalla) Tashkent, Izd-vo AN UzbSSR, 1961. 323p. 3000 copies printed.

PERIODICALS TRANSLATED COVER-TO-COVER

For basic list of Periodicals Translated Cover-to-Cover see Technical Translations Volume 9 , Number 1.

This basic list is kept up-to-date by giving only changes in the subsequent issues of Technical Translations.

No changes are necessary for this issue.